



Tracking Whitebark Pine Field Manual

Your step-by-step guide to
completing an observation



TO DO BEFORE HEADING OUT

1. Complete the online training

2. Download Survey 123 application and Tracking Whitebark Pine Survey



- Use the QR code or [this link](#)

Note: if you do not already have Survey 123 loaded on your device, you will need to visit the QR code or link two times.

3. Plan your adventure

- Use the map on the volunteer homepage to plan your adventure.

What you need:

Adventure Scientists Provides:

1. Observation permit (this was emailed to you and also available on the volunteer homepage)
2. This Field Manual; be sure to download it to the device you will have with you in the field.
3. Trail and Project Boundary file; download this to your mapping application on your device.

Volunteers provide:

1. Smartphone with Survey 123 application downloaded and Tracking Whitebark Pine Survey loaded.
2. Adventure and safety equipment
3. GPS navigation application or device
4. Binoculars (or a camera with a good zoom)

Optional, but recommended:

1. Smartphone binocular attachment

Observation Basics

Before you head out on your adventure, make sure to download the Tracking Whitebark Pine layer and add it to the navigation app of your choice.

This layer will clearly show where the outlines of the project area are (in national forests, non-wilderness zones above 5,250ft).

When you begin your adventure and every time you log presence/absence make sure to open your navigation app to ensure that the observation is inside the project area.

Remember that you are recording observations every mile and every time you see a potential whitebark pine tree above 5,250 feet in elevation.

Searching for Whitebark Pine

Once you reach 5,250 feet in elevation, visually scan the proximity for potential whitebark pine trees.

As you adventure, keep an eye out (both on & off your route) for potential whitebark pine. Scan the surrounding area in all directions, especially in areas where the habitat changes.

Whitebark thrive in harsh, high-elevation environments, typically growing between 5,250ft - 11,000ft. They favor cold, windy, snowy areas with dry, coarse, well-drained soils. As a pioneer species, they're growing where other trees struggle including exposed ridges, talus slopes, and recently glaciated terrain.

If you spot a tree that could be a whitebark safely approach it to take a closer look. If you don't see whitebark as you move along, be sure to stop at least every mile to log absence data. Your navigation app of choice can help you keep track of mileage.

Whitebark pine tree ID

Basic Tree Shape

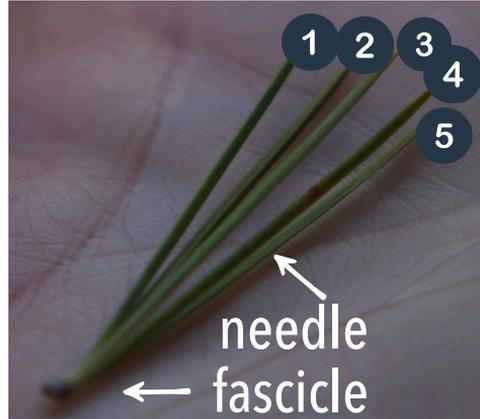
photo credit: Shamhart



Needle Bundles



photo credit: Belfield



Entering Data in Survey 123

Once you reach 5,250 ft within the project boundary, stop at least every mile and anytime you see a potential whitebark pine.

At every mile, if you do not see potential whitebark pine, you will complete observation A.

If you spot a potential whitebark pine at any time, you will complete observation B.

At the end of your day in the field, you will complete observation C.

A. No potential whitebark pine tree(s) sighted, begin on this page.

B. Potential whitebark pine tree(s) sighted, begin on page 8.

C. Trip Report, begin on page 23.

NOTE: The Trip Report is completed only once per adventure. When you are finished completing surveys for the day, you will submit one Trip Report.

Entering Absence Data

(no potential whitebark pine tree sighted)

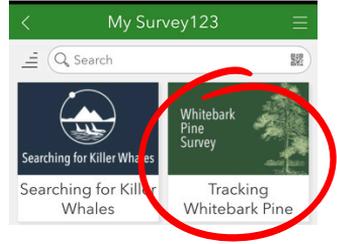
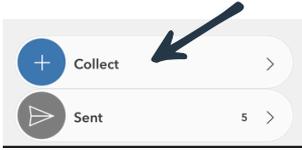
1. Open the Survey 123 App.
2. Click "Continue without signing in"



Entering Absence Data cont'd

(no potential whitebark pine tree sighted)

3. Click the "Tracking Whitebark Pine"
4. Click "Collect"

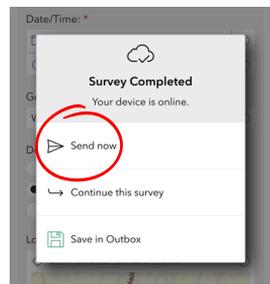


5. Begin entering observation data

This was emailed to you when you signed up for the project. You can also retrieve it [here](#)

Enter the trail or name of the relative location where you made the observation.

Click here to submit the observation.

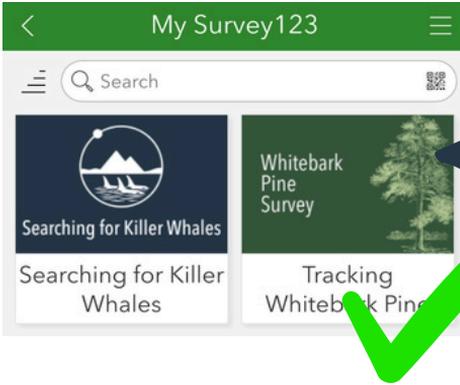


Entering Absence Data cont'd

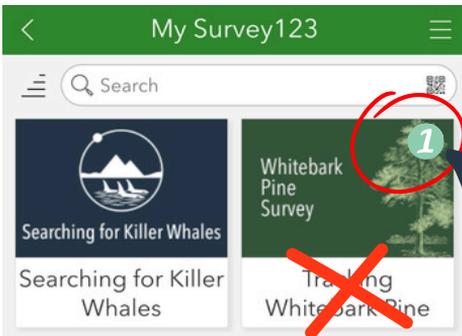
(no potential whitebark pine tree sighted)

6. Check that your data was submitted.

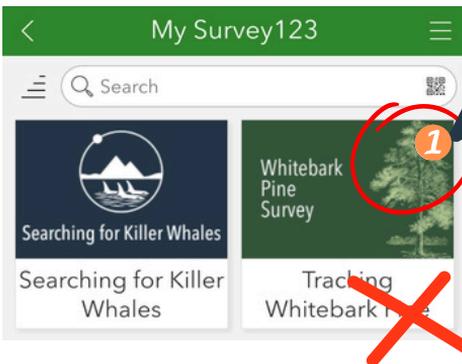
Close the application then reopen.



All data is submitted!



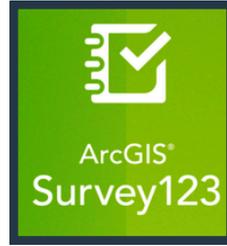
Data is not yet submitted.



Open the project and submit.

Entering Potential Whitebark Pine Tree Sighting Data

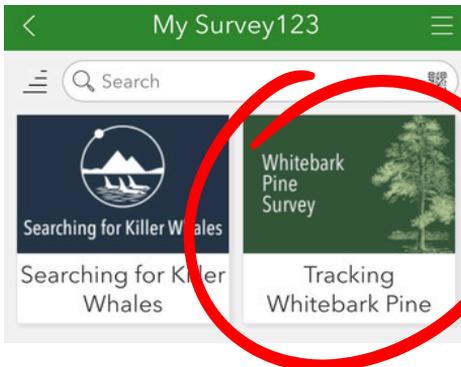
1. Open the Survey 123 App.



2. Click "Continue without signing in"

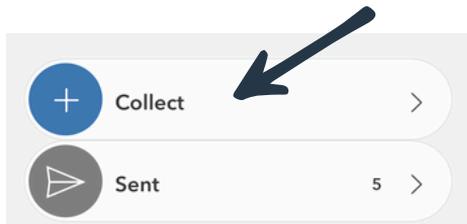


3. Click the "Tracking Whitebark Pine"



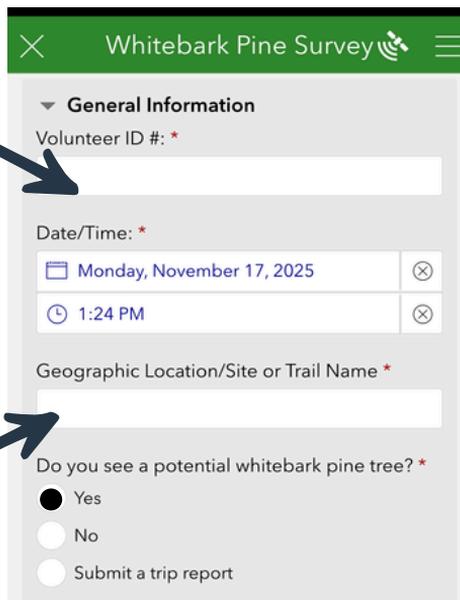
Entering Potential Whitebark Pine Tree Sighting Data

4. Click "Collect"



5. Begin filling in observation data.

This was emailed to you when you signed up for the project. You can also retrieve it [here](#)

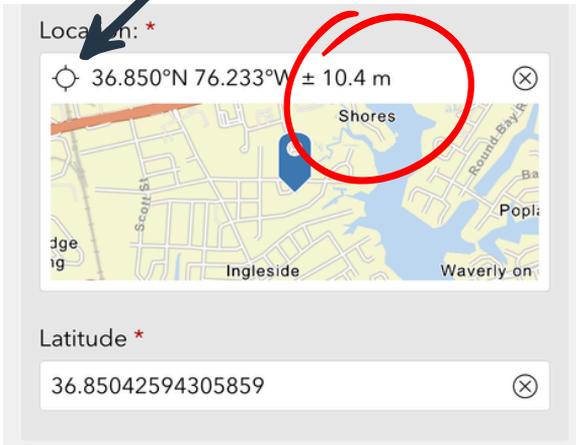


Enter the trail or name of the relative location where you made the observation.

Entering Potential Whitebark Pine Tree Sighting Data

6. Check the Location accuracy.

If the value is greater than 5m, click the circular icon to refresh.



Troubleshooting GPS accuracy

If the GPS accuracy is greater than 5m

Wait a couple minutes to allow multiple satellites to pass and triangulate your position for more accuracy.

Do the best you can.

If you can't get it <5m, please continue the survey. We can still use the information about the tree.

NOTE: This accuracy is important for specific tree identification.

Entering Potential Whitebark Pine Tree Sighting Data

7. Whitebark Pine Report

Whitebark Pine Survey

Whitebark Pine Report

How confident are you it is a whitebark pine? *

Western white pine can look very similar, check these photos to compare.

Not very confident

Somewhat confident

Very confident

Take a photo of the study tree from ~20 feet away with the tree in the center *

If the full tree cannot be captured at 20' stand back further to capture the whole tree

Is it a single tree or multi-stemmed tree? *

Single Tree

2-3 Stems

4+ Stems

Note: you must submit a photo here or you will be unable to complete the observation.



This photo shows a whitebark pine with 2 stems.



Recording whether the tree is a single tree or a multistemmed tree is a helpful way to describe the tree to researchers.

A multi-stemmed tree splits/separates below 4.5ft of height

Multi-stemmed whitebark pine trees are very common because Clark's nutcrackers often cache seeds that grow into separate trees in a clump/group together.

Entering Potential Whitebark Pine Tree Sighting Data

8. Enter additional observational data.

If you select yes here, this will appear



Is snow covering the ground? *

Yes

No

What is the measured snow depth? *

What unit is your measurement in?

Centimeters

Inches

A. Look at the tree and estimate about 4.5 feet from the base of the tree up the trunk (about counter height).

B. Compare the width of the trunk at 4.5 feet to these values and select the best option.



What is the estimated DBH of the tree? *

If your tree is multi-stemmed, select the DBH for the largest tree in the cluster.

< 5 inches (smaller than a grapefruit)

5-10 inches (bigger than a grapefruit and smaller than a basketball)

11-15 inches (bigger than a basketball and smaller than a beachball)

+16 inches (bigger than a beachball)

Entering Potential Whitebark Pine Tree Sighting Data

8. Enter additional observational data.

What is the estimated height of the tree?

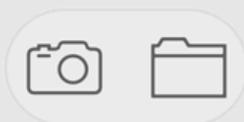
Remember, in winter take into account snow depth!

- < 4.5 feet **about counter or bar top height**
- 4.5 - 10 feet **up to the height of a basketball hoop**
- 10 - 20 feet **about 1-2 basketball hoops tall**
- Over 20 feet **taller than a typical flagpole**



Make an estimate of the tree's height based on these options and guidance here.

Take a photo of a branch with needles as close up as possible, so that you can see the number of needles in a needle cluster. If the only branches with needles are near the top of the tree use binoculars to zoom in. *



Note: you must submit a photo here or you will be unable to complete the observation.

Entering Potential Whitebark Pine Tree Sighting Data

9. Location description

 Whitebark Pine Survey  

▼ Location Description

What direction is the slope facing? *

Use your navigation app or compass to determine the approximate downhill direction

N

NW

NE

S

SW

SE

E

W

Imagine a ball rolling straight down the slope. Align the compass's direction-of-travel arrow with this downhill path. This will be the slope.

If your navigation software has contour lines, you may also be able to discern slope from the map.

How close is the tree to the trail or road? *

Tree is on or next to a road

Within 100 yards (football field) of a trail or road

More than 100 yards from a trail or road

Unable to assess

Entering Potential Whitebark Pine Tree Sighting Data

10. Surrounding Tree Assessment.

Note: This is a quick estimate to help researchers know the density of whitebark pine in the area.

Focus on potential whitebark pine trees >5 inches in diameter. (larger than a grapefruit)

Count the number of potential whitebark pine trees within 50 feet of the tree in any direction.

*



1-10



11+



Unable to assess

Describe the trees in the immediate area *



Whitebark is the only tree species in this immediate area



Whitebark is the dominant tree species in this immediate area



Whitebark is a moderate tree species in this immediate area



Whitebark is a minor tree species in this immediate area

Use your best judgment to determine if most of the trees are whitebark pine (dominant), there is a mix of species (moderate), or there are only a few whitebark pine trees among other tree species (minor).

Entering Potential Whitebark Pine Tree Sighting Data

11. Potential Whitebark Pine Tree Assessment

▼ Tree Assessment

What percentage of the tree is dead? *



- Live, healthy tree, no flagged branches
- One or two flagged branches
- 1/3 of the tree dead
- 2/3 of the tree dead
- More than 2/3 dead
- 100% dead with red flagged needles still attached
- 100% dead with no needles remaining

Take a photo of the flagged branches: *



NOTE: Flagged branches are where the needles have turned orange or red, like a "flag"

Flagged branches are a sign that parts of the tree might be dead.

If the tree is 100% dead, please select a living tree to survey. The primary goal of this research is to collect data on living trees.

If there are flagged branches, you will be prompted to submit a photo here.

Entering Potential Whitebark Pine Tree Sighting Data

12. Potential Whitebark Pine Tree Assessment

In winter months, it will be difficult to assess blister rust, mountain pine beetle infestations, and dwarf mistletoe accurately.

Unless you can definitively say "yes" or "no" here, default to answering "unable to assess" in this section.

NOTE: For a refresher on evidence of these, see pages 18-20

Do you see potential evidence of blister rust on the tree? *



e.g. swollen zone, roughened bark, old cankers, sporulating cankers

- Yes
- No
- Unable to assess

Do you observe any holes in the trunk of the tree likely caused by mountain pine beetles? *

In winter, especially if there is snow on the tree, select unable to assess

- Yes
- No
- Unable to assess

Do you see areas of excessive growth or limbs/needles on the tree that suggests it has been affected by dwarf mistletoe? *

- Yes
- No



Evidence of Pine Mountain Beetle

photo credit: Shamhart



photo credit: Stauder



photo credit: Belfield





Entering Potential Whitebark Pine Tree Sighting Data

13. Regeneration Potential

If you select cones or conelets, additional fields will appear



How many cones do you see? *

Upload two different images for any cones observed.

< 12

12-50

50+

Cone Image One *

Cone Image Two

▼ **Regeneration Potential**

Do you see any cones or conelets on the tree you are observing? *

In winter, especially if there is snow on the tree, select unable to assess

Cones

Conelets

I don't see any

Unable to assess

Additional Notes

Please include any additional information that might help identify the tree or explain your observation.

You can add any additional observation details or other information that you think might be helpful about your observation here.



Click here to submit the observation.

How many conelets do you see? *

Upload two different images for any conelets observed.

< 12

12-50

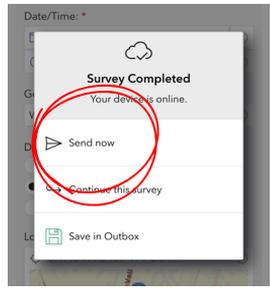
50+

Conelet Image One *

Conelet Image Two

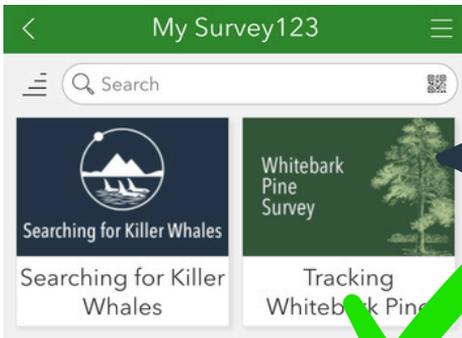


Entering Potential Whitebark Pine Tree Sighting Data

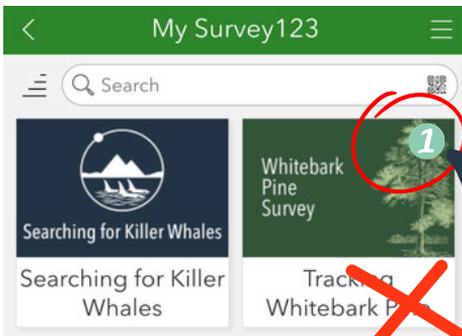
14. Click the check mark in the bottom right corner to submit your observation data.

15. Check that your data was submitted.

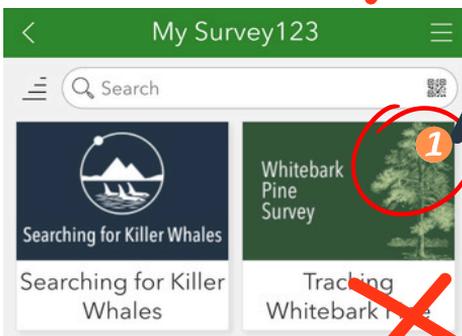
Close the application then reopen.



All data is submitted!



Data is not yet submitted.



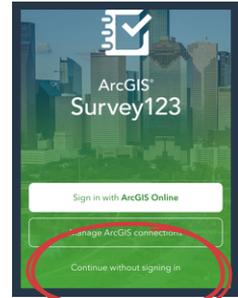
Open the project and submit.

Completing a Trip Report

1. Open the Survey 123 App.



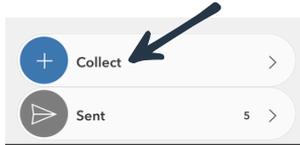
2. Click "Continue without signing in"



3. Click the "Tracking Whitebark Pine Project"



4. Click "Collect"



5. Begin entering observation data

The image shows the "Whitebark Pine Survey" form. It has a green header with the text "Whitebark Pine Survey" and a menu icon. Below the header, there is a "General Information" section with the following fields:

- Volunteer ID #: * (text input field)
- Date/Time: * (date and time pickers)
- Geographic Location/Site or Trail Name * (text input field)
- Do you see a potential whitebark pine tree? * (radio buttons for Yes, No, and Submit a trip report)

This was emailed to you when you signed up for the project. You can also retrieve it [here](#)

Enter the trail or name of the relative location where you made the observation.

Completing a Trip Report

6. Complete report.

▼ Trip Report

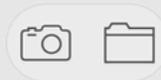
How many miles did you cover while searching for whitebark pine? *

Use your navigation app to report your mileage. This will help us count the number of miles surveyed, inform researchers on access, and help us know where you have surveyed.

How many miles did you travel within the project area (above 5,250 ft elevation and within the national forest project boundaries)?

Please upload a screenshot of your route. This isn't required, but it helps us log where people have already surveyed.

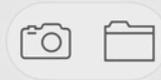
Even better, email whitebarkpine@adventurescientists.org your .gpx route!



Share a fun photo with us.



Add a photo of your adventure! This could be a scenic shot, a group selfie, or anything that can tell us more about your experience.



Add any details about your experience you would like to share



Would you like to share anything interesting about your adventure today?

Click here to submit the report.



Safety Considerations

As an Adventurer, you know that participating in outdoor activities such as hiking, snowshoeing, climbing, skiing, etc., has inherent risks.

Before you head out on your adventure, familiarize yourself with the weather, environmental conditions, and wildlife.

Complete any additional safety preparation you feel is necessary for your adventure! And of course, always adventure with a buddy!

IN CASE OF EMERGENCY FIRST, CALL 911

Once you are in a safe situation, after the emergency, alert Adventure Scientists staff about the incident by contacting: (406) 624-3320 extension 2

ONLY contact this number if you are reporting an incident.

Have project-related questions?

Email:

whitebarkpine@adventurescientists.org