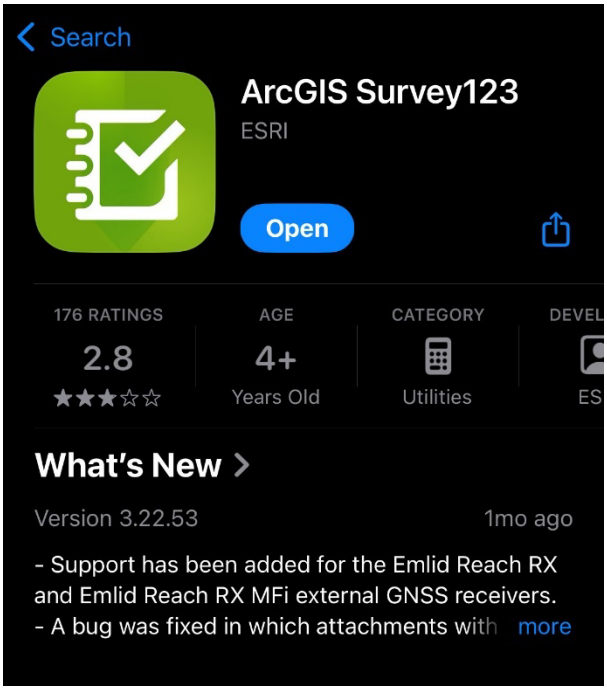
Nevada Division of Natural Heritage (NDNH) Survey123 Instructions

March 2025
Please contact psilbey@heritage.nv.gov with questions or comments.
Thank you for submitting your data to NDNH.

Install the Survey123 Mobile Application

On a mobile device, search for "Survey123" in the App Store (iOS) or Play Store (Android). You're looking for this:



Install the app and open it.

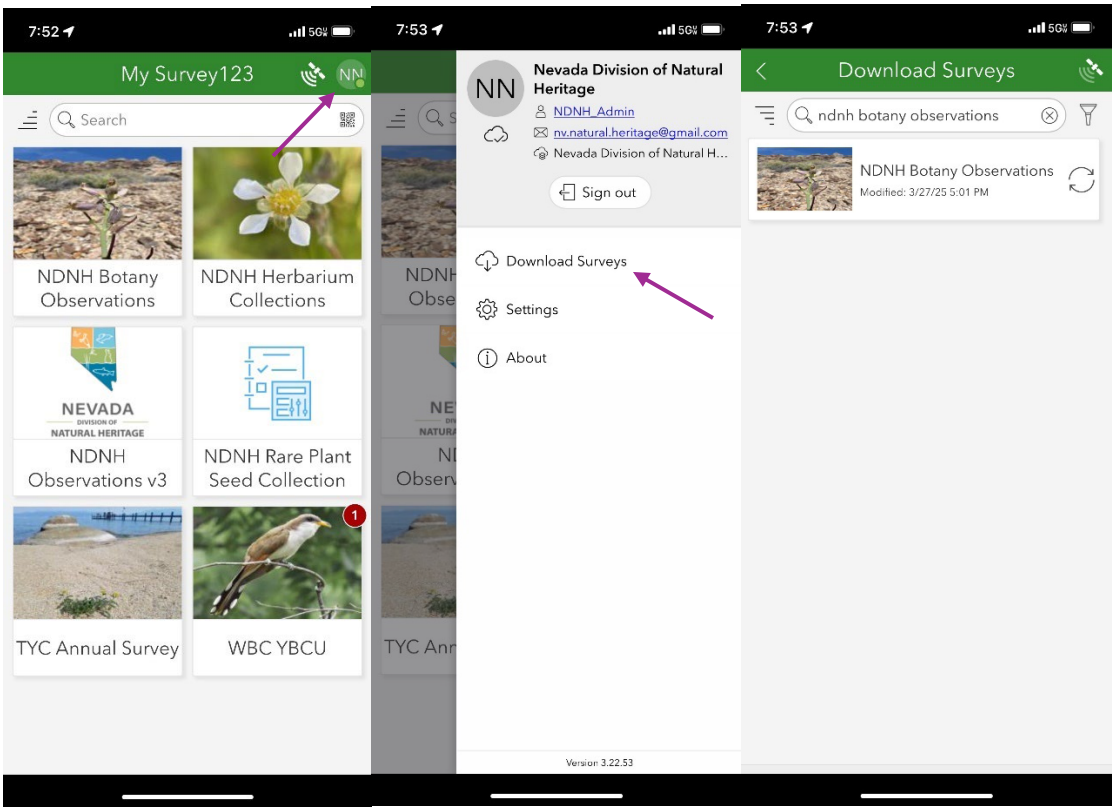
Find the NDNH Botany Observations Survey

When you open Survey123, you will be prompted to sign in to an ArcGIS Online account. If you have one through your job, you can sign into it. If not, you can select "Continue without signing in". Either will work.

Whether you are signed in or not, you can use this link or QR code on your survey device to directly access the NDNH Botany Observations Survey123 form once you have the app installed:

https://survey123.arcgis.app?itemID=ce804473c8504f64ac3bf148ad0f15a3

If you are signed in, you can also search for the survey:



Use the Survey Form

What's required

The form has very few required fields. If time or other factors are an issue, the bare minimum that is truly "required" is:

-Data Collector Name & Organization

-Date

-General Area (e.g. named mountain range or valley)

-Species

-Whether species was detected

-Whether data should be restricted

-Mapping data (points/polygons)

-Population count/estimate

-Dominant life stage (phenology)

-Whether the full extent of the population has been mapped

All these fields are contained in the first three pages of the survey and have detailed instructions for filling them out in the following instructions. The remainder of the survey, pages four through eight, are nice for us to have, but not essential.

General instructions

This survey is designed to allow direct import into the NDNH database and streamline our data entry process. As such, please fill out as many fields as possible/appropriate, and use complete sentences and correct spelling and punctuation in comment fields to minimize QC required prior to data transfer.

Remember that you can fill out essential parts of the form in the field and complete other sections later when you're back in the office. Writing-intensive fields or those that benefit from being able to look at a variety of maps lend themselves well to office completion—if you're planning to use this workflow, please save your survey in the outbox when you're done, then access it from the outbox later to complete the additional fields. You can also edit surveys that have already been sent if necessary.

Saving your progress

There are two ways to save an in-progress survey. Regardless of whether you have completed the required fields or not, you can always click the "X" in the top left corner of your screen, which will open a menu. One of the menu options is "Save as Draft"—you can do this and then access your in-progress survey from the main menu later on, under "Drafts."

If you have completed the required fields, you can save your survey in the "Outbox." You can do this by clicking the check mark that appears on the final page (page 8) of the survey in the bottom right corner of your screen. This will again open a menu, and one of the options is "Save in Outbox." You will also save your survey to the Outbox once it is complete if you are offline. Again, your Outbox surveys will be visible from the main menu, under Outbox.

Page 1 – Visit Information

Data Collector Name – Your name

Data Collector Email – If you are not affiliated with NDNH or regularly in touch with NDNH biologists, please add your email address so we can contact you. If you are filling out multiple surveys, you only need to do this the first time.

Organization – Use the dropdown menu and, if necessary, the next box to tell us your affiliation.

Visit Date – This will populate automatically when you open the form. If necessary, you can change the date by clicking on the little calendar on the left.

General Area – Use 2-3 coarse identifiers such as local landmarks and the mountain range/valley you're in. If you don't know the nearest local landmark (like the name of a canyon, spring, road, or other geographic feature), just the mountain range or valley is fine.

> e.g. Petrified Canyon, Black Rock Desert

Locality – If you are able, fill out the locality with as much detail as you would encounter in a good herbarium label.

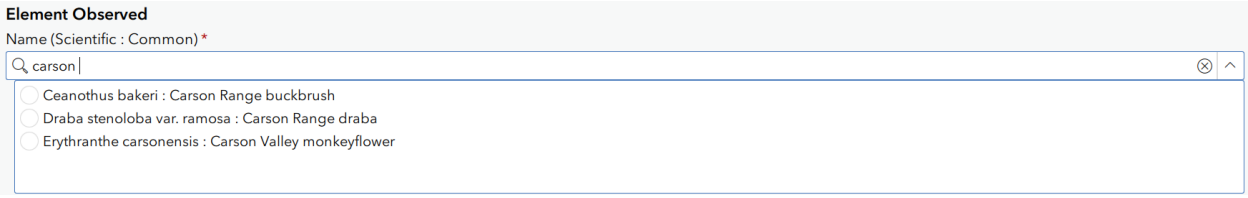
> e.g. Lincoln Co., Mahogany Mountains, Deer Lodge Canyon, 8.8 miles E along Deer Lodge Road from State Hwy 86, and then 0.1 mi E of road. 6,547 ft. elev. 37.902004, -114.116847

Driving Directions – Optionally, include driving directions to wherever you parked. These can be short.

Page 2 – Element Observed

"Element" is a term used by NDNH that refers, in this case, to the taxon you're observing. We say "element" rather than "species" or "taxon" because we also map rare and threatened ecosystems—an alpine fen, for example, is not a "species" or "taxon", but is considered an "element".

Name – This refers to the taxon you are surveying. This field is an autocomplete text box—if you start typing either the scientific or common name of the species you're surveying for, it will narrow down the list automatically:



It is preferable to start typing rather than to scroll through the dropdown, because thousands of species are included as choices and it will take you quite a while to locate a particular one.

Once you make a selection, other information such as the global and subnational ranks, BLM status, and NatureServe Explorer web links are auto-populated for reference.

Element Detected – "Yes" if you found the species you were looking for, "No" if not. Negative surveys can be useful for cataloging areas that have been searched for a species where it was not found.

Restricted Data – If you're on private land or otherwise creating data that should not be widely shared, choose "Yes" or "Conditional". In general, this will be "No" (the default).

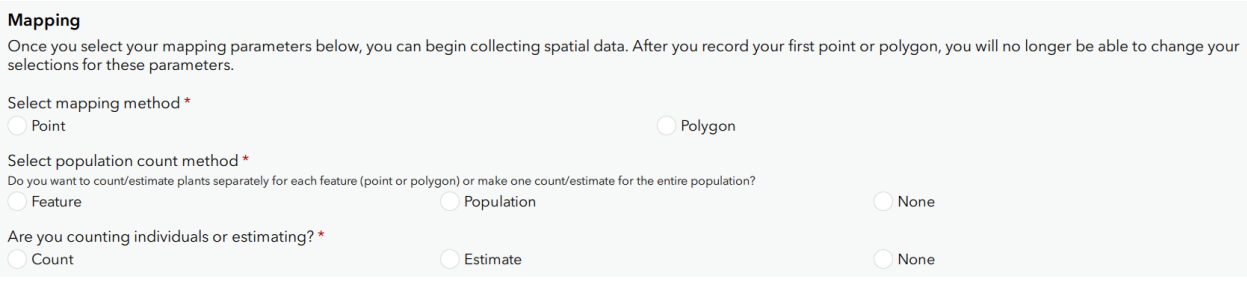
Voucher specimen collected – If you collected a voucher, mark "Yes"

Seed collection made – If you collected seed, mark "Yes"

Element Notes – Optionally, discuss taxonomy and identification issues you encountered here.

Page 3 – Mapping

This is the most complex and important section of the form. We will go through each component in detail. First, select mapping parameters:



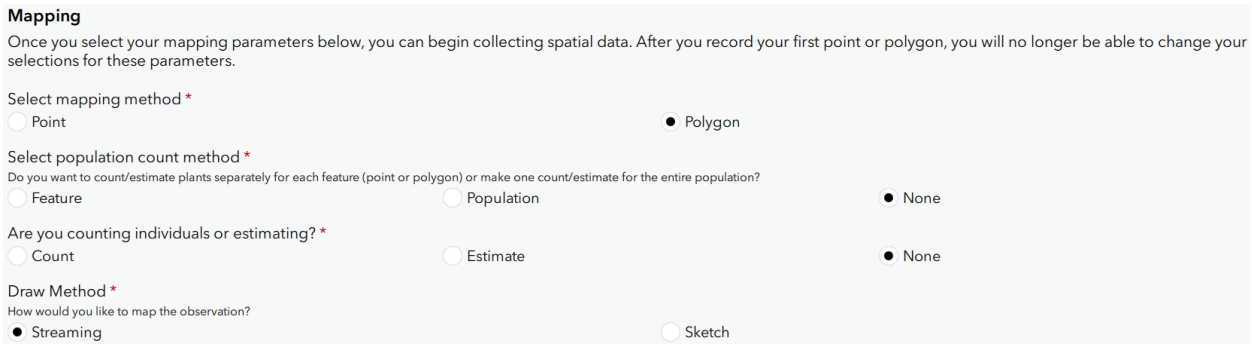
The mapping method presents two options: you can collect data in the form of points or polygons. Typically, points are simpler, but there are cases where you would rather use

polygons. As a general guideline, points are best suited when clumps of plants are very spread out, individuals are not easily detectable within their habitat (e.g. plants are incredibly small), or topography inhibits you from walking a clear population boundary, while polygons are suited when there are distinct clumps/ sub-populations > 1 acre in size, and substrate, topography and detectability of the species allows you to easily walk the boundaries.

The population count method again offers two options: you can count or estimate the number of individuals for each point/polygon you collect, or for the population as a whole. You can also select "None" if you are not interested in counting or estimating plants (often this information is not particularly useful or accurate for annuals).

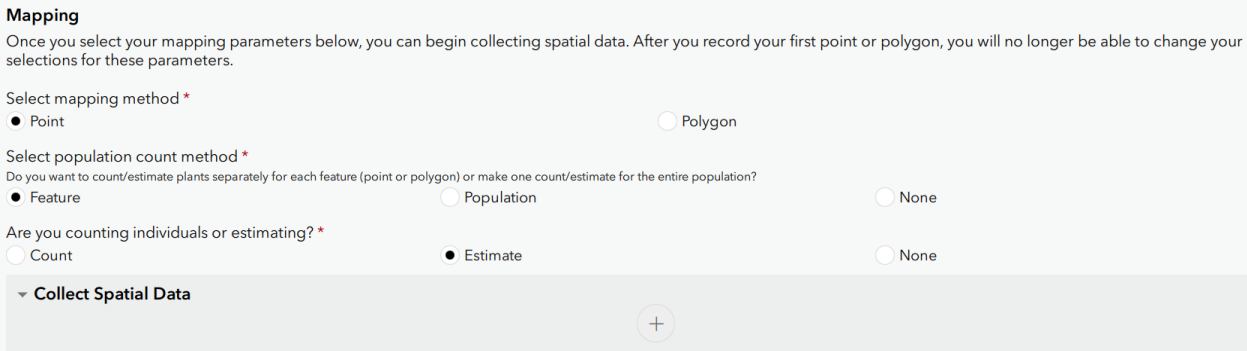
You can select "count" if you want to perform an exact count of the number of individuals you encounter, or "estimate" if you want to select an estimate from predefined ranges.

If you elect to map polygons rather than points, a fourth parameter called "Draw Method" will appear:



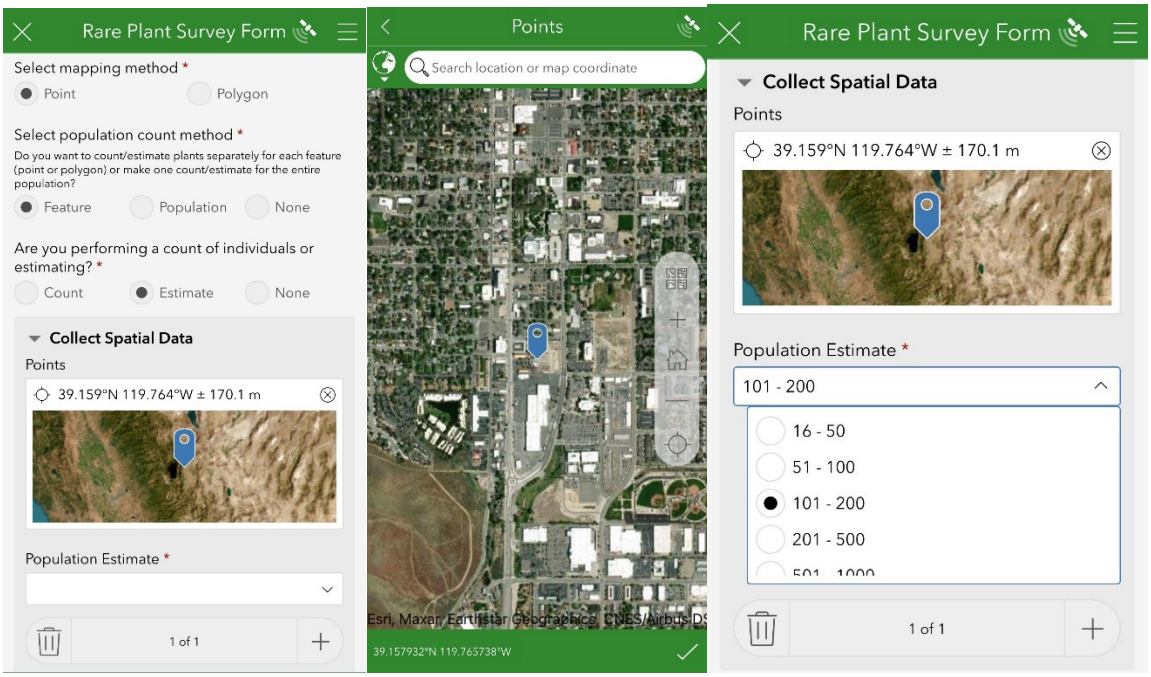
"**Streaming**" will allow you to walk the perimeter of the population, with Survey123 automatically creating a polygon based on your route. "**Sketch**" will allow you to draw a polygon on a satellite basemap. In general, the sketch functionality can be difficult to use and has accuracy limitations, so we recommend using streaming (the default option).

Once all mapping parameters are selected, a new section titled "Collect Spatial Data" will appear. Once you begin to collect spatial features, the mapping parameters are grayed out and cannot be changed unless you delete all of your features, so please ensure that you understand the parameters and have made the correct selection before beginning to map.



Click the plus sign to begin.

Mapping Points



Simply clicking the plus sign will automatically collect a point. The form will display coordinates (WGS 84, decimal degrees) and precision (+/- X meters).

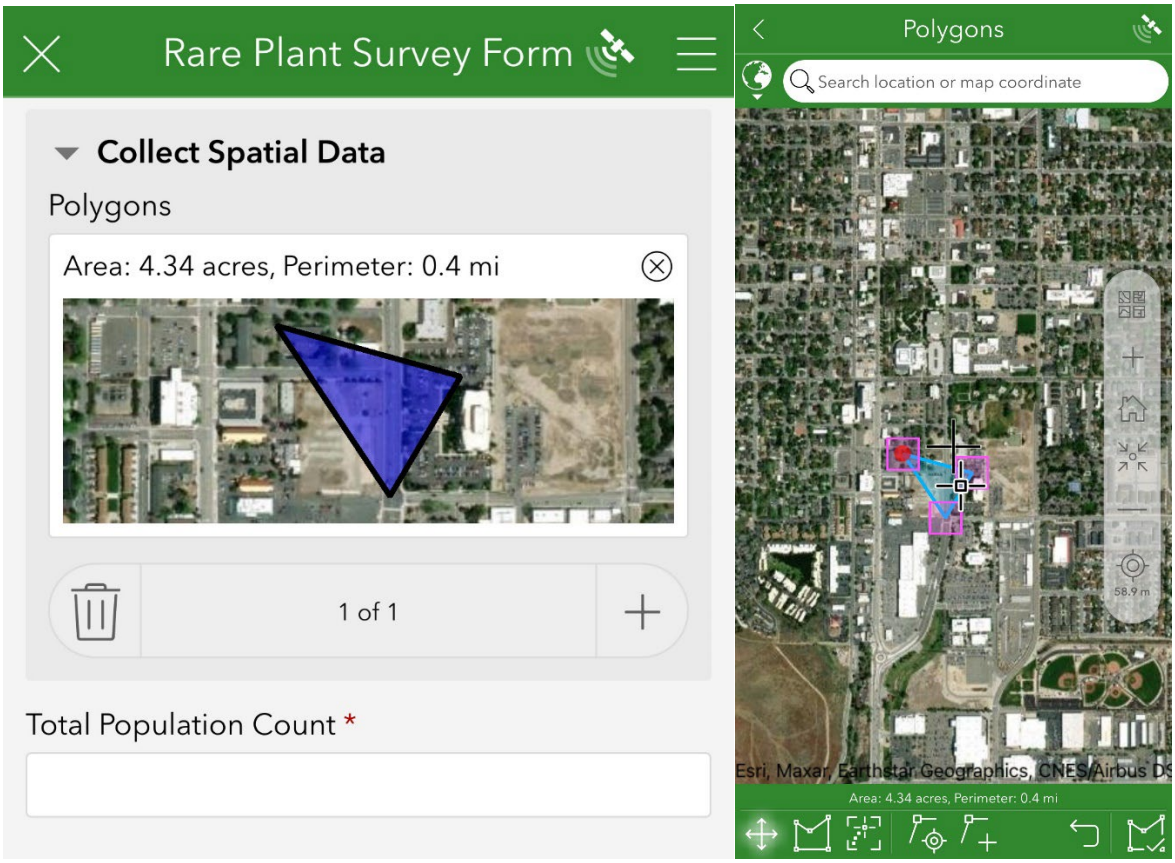
If you are unhappy with the point collected, you can map the point manually against a satellite background by clicking the target in the top left corner of the point display box. Alternatively, you can remove the point and start over by clicking the X in the top right corner of the point display box.

If you have chosen “Feature” for population counts/estimates, there will also be a box to provide your count or estimate for the point you’ve collected. The screenshots above show estimate options, for counts you will simply input an integer.

To collect another point, use the plus sign at the bottom right of the Collect Spatial Data section. To delete your point, use the trash can icon at the bottom left. If you have collected multiple points, arrows will appear and allow you to scroll through the points you have collected.

There is no limit to the number of points you can collect. In general, your mobile device's GPS is not going to be any more accurate than 5 m, even in perfect conditions, so you should space your points at least that far apart for them to be useful.

Mapping Polygons



Mapping polygons is a bit more complicated, but can be preferable in certain situations. Geometrically, a polygon is simply a series of vertices (points).

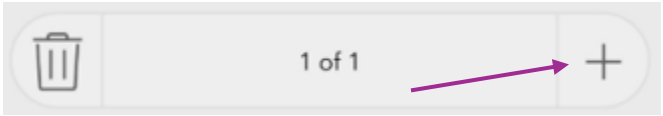
To collect by streaming, begin by tapping the polygon button in the lower left corner of the map:  . Then, to collect vertices automatically as you walk around the area you're interested in mapping, tap the next button to the right:  (the four corners with the cross that has a streak of points leading to its lower left corner). Then, walk around until you're satisfied with the polygon. You can see your progress on the map as you go. You can always

add a vertex manually at your location by clicking the button, or add a vertex at the focus point on the map by clicking the button. If you make a mistake, you can remove the previous vertex with the button. When finished, click the polygon with checkmark button in the bottom right corner to complete: . Your final polygon will appear on the map, and there will be one more checkmark in the bottom right corner to confirm you're finished with that polygon.

After a few tries, the controls will be more memorable and come more naturally.

If mapping with the sketch option, the shape button will allow you to draw circles, rectangles, or triangles on the map. The line button will allow you to draw a custom polygon. Again, use the check mark at the bottom right to confirm once you are finished drawing.

Just like with points, you can collect as many polygons as you like. Use the plus button:



to begin mapping your next polygon.

Other information on the Mapping page

Dominant Life Stage – Select the phenology option that you're seeing the most often in the population.

Mapping Notes – Optionally, write notes that explain your mapping method, challenges, unmapped potential habitat, or phenological quirks.

Confidence Extent – Are you confident that you mapped all plants present in this area? If so, select "Y". If you are certain that there are unmapped plants here, select "N", and if there may be unmapped plants here but you're not sure, select "?".

Page 4 – Habitat

Light, Slope, Slope Position, Aspect – These are drop-down menus with defined options for each field. Note that Slope Position and Aspect allow you to select multiple options if appropriate.

Hydrology – Briefly discuss the hydrology of the habitat.

Vegetation Community – Describe the dominant plant species in the habitat.

Substrate – Describe the soil(s) on which the target species is found and/or the materials from which they are derived, to the best of your ability. If you do not know technical geology or soil science terms, color, texture, and feel are still valuable information!

Estimate of suitable habitat in the area (acres) – Estimate how many acres of suitable habitat are present.

Habitat Comments – Discuss any relevant habitat factors not covered above. For example, if you notice that the target species is growing from cracks in rocks or only under trees, that fact should be noted here.

Pollinator Interactions – If you notice pollinators visiting the target species, write what you can about those pollinators. Again, non-technical terms and descriptions are acceptable. e.g. 'small white butterfly'

Page 5 – Condition & Threats

Condition of Species/Ecological Community – This question presents five options to evaluate the condition of the taxon at this site:

Extant – Taxon is present, no further assessment of condition.

Poor – Taxon is declining, low reproduction, high threats, imminent danger of extirpation.

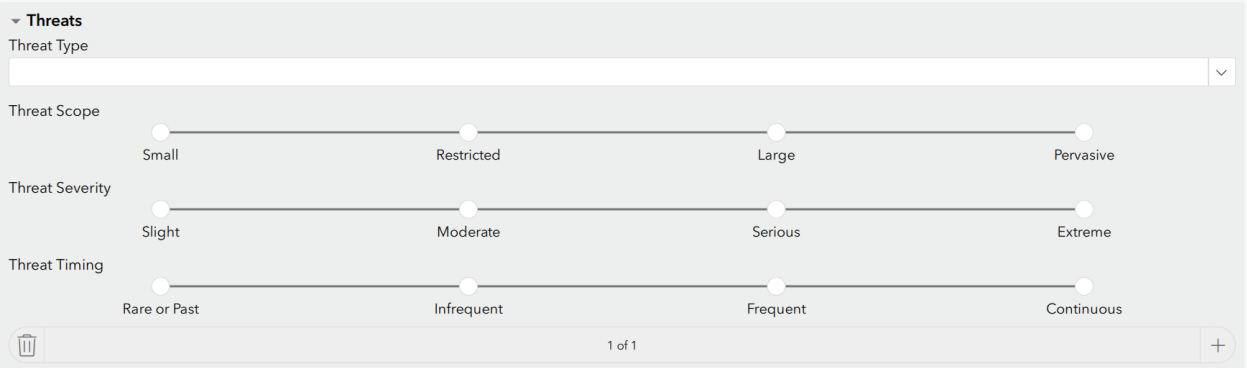
Fair – Taxon is stable to declining, low reproduction or high threats, habitat becoming unsuitable for taxon.

Good – Taxon is stable, good reproduction, habitat area is stable with some threats.

Excellent – Taxon is stable to increasing, habitat area is large and stable with few threats.

Condition of Species/Ecological Community Comment – Verbal explanation of above rating, with additional notes about site quality, reproduction, etc.

Threats – As with the mapping section above, the Threats section is a "repeat" that allows you to collect multiple responses to one set of questions. Identify any threats that may cause population decline or reduce resilience. Please keep in mind that we are only assessing present/ongoing and future threats (not past threats that will never again affect the species). Note/photograph specific impacts observed to the species or habitat (e.g. cattle hoofprints are causing soil erosion or compaction that may interfere with recruitment; stems and leaves have been browsed by [insects/other herbivores]; plants are dependent upon shallow groundwater that could be affected by pumping; etc…).



The "Threat Type" dropdown allows you to select one of many options, including invasive species, development, roads, habitat shifting & alteration, and many others. There is an "Other" option at the bottom of the list if you notice a threat that is not listed. For the selected threat, you are asked to rate its scope, severity, and timing, as detailed below:

Threat Scope – How much of the observation is affected.

Pervasive – >75% of the observation

Large – 40% to 75% of the observation

Restricted – 5% to 40% of the observation

Small – <5% of the observation

Threat Severity – How intense the effect is in affected areas.

Extreme: causing or likely to cause a population decline of 71-100%

Serious: causing or likely to cause a population decline of 31-70%

Moderate: Causing or likely to cause a population decline of 11-30%

Slight: Causing or likely to cause a population decline of 1-10%

Threat Timing – How often the threat occurs.

Again, use the plus sign at the bottom right to collect information about additional threats you observe.

There is a Threats Comments box at the end for additional discussion of threats if necessary. This is a great place to list which/if any invasive/non-native species are present or other comments.

Page 6 – Photos

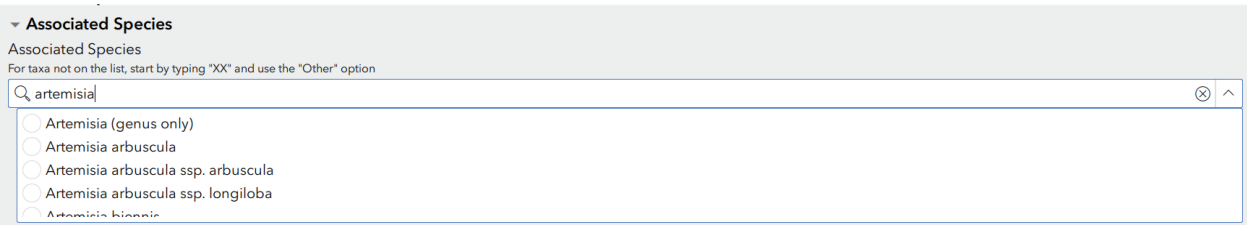
On this page, you can take photos using your mobile device or add them from your device's photo library, and can also add captions.

Additionally, there is a place to add a link to an iNaturalist observation if you prefer to upload your photos there.

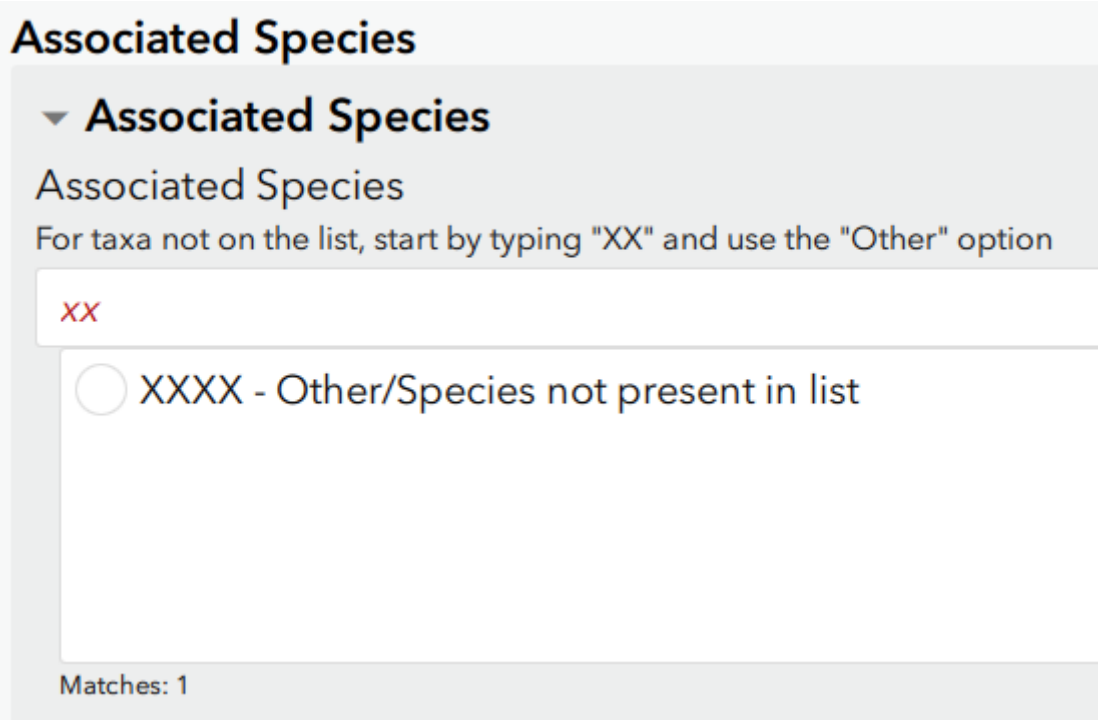
High-quality photos showing important characteristics of the plant are greatly appreciated, especially when identification of a particular species is difficult or uncertain. Botanist and Bodie Hills expert Tim Messick has written an excellent guide for taking good photos on his iNaturalist profile: https://www.inaturalist.org/people/tmessick

Page 7 – Associated Species

You can record associated species here. The box is again an autocomplete list of Nevada plant species, so it is best to start typing to find a particular species:



This list allows you to select a genus if you're not able to identify a plant to species in the field. There is also an "Other" option if the species you'd like to add is not coming up—the quickest way to get the "Other" option is to type "XX" in the search box:



Note that the list derives from our NatureServe database and may not use taxonomy you're familiar with—I recently failed to find "Ericameria teretifolia" only to recall that it is on this list as "Chrysothamnus teretifolius", a name from an older classification of this group. We are always working on updating the list.

As you enter associated species, the form will present them to you in a list below the repeat section:

There is also a comment box if you would like to remark further on abundance or associations of any of the species you listed. This is a great place to put species that you could not find in dropdown section above.

Page 8 – Other Comments

Anything else you think we should know goes here.