

Guide to Your First Visit & How to Observe in the Field with *Nature's Notebook*

Choosing a Site

A **site** is the area within which you will look for your chosen animal species, and which encompasses any plants you choose to observe. When you select a site, such as your yard or a nearby natural area, consider these guidelines:

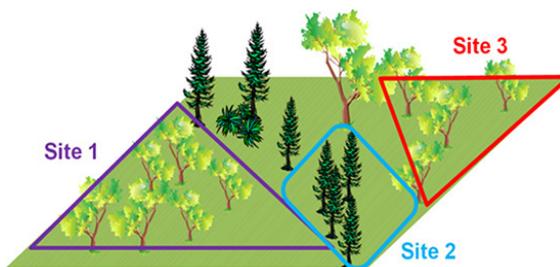
Convenience: You will be visiting your site(s) regularly, so it should be convenient and easily accessible.

Representative Location: As much as is practical, the selected site(s) should be representative of the environmental conditions for your area.

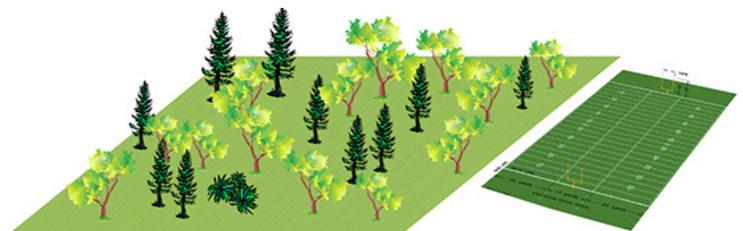
We welcome all observations, even if your site is unusual for your area, but we encourage people to select sites that are representative of the local environment when possible. For example, if possible, we recommend that you select a site in a relatively flat or gently sloping area. We also recommend that you avoid areas that are subject to drifting snow or funneled or channeled winds. The site should ideally be neither excessively dry nor wet for your area. In forested areas, the site should be generally similar to the surrounding forest, reflecting the overall canopy composition and stature. If you are observing wild plants, we suggest you avoid locations where plants are watered or fertilized. If your site is unusual for your area, just record the unusual characteristics in the comments section of the *Nature's Notebook* Add a New Site page when you register your site.

Uniform Habitat: The conditions of your selected site(s) should be relatively uniform across the site. If you would like to observe two adjacent but distinct habitats, please document them as separate sites. For example, a wetland adjacent to or surrounded by a drier grassland or forest should be documented as a separate site from the grassland or forest.

Appropriate Size: A site should be no larger than 15 acres (6 hectares or 250 x 250 meters, or the size of a pixel from a land surface satellite image), a square with sides the length of 2 ½ football fields. A site can certainly be smaller than this, and larger areas can be divided into multiple sites.



In this example, the area has been divided into three sites: Site 1 is deciduous forest, Site 2 is conifer forest, and Site 3 is deciduous forest.

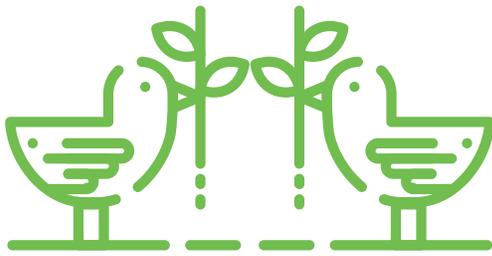


In this example, the site is slightly larger than the length of one football field, so it is well within the recommended 15-acre size limit.

Choosing a Site FAQs

How do I choose an appropriate size for my site?

The best size for your site depends on the scale of your landscape and the distance over which you can easily see or walk. It also depends on whether you are observing animals or only plants. For plants, a site is the area that surrounds the individual plants you are observing. For animals, a site is the area where you look for the animals on your checklist. If you are observing both plants and animals, your site(s) can serve in both of these ways.



How do I define my site if I am observing animals?

Because you will be reporting observations of animals you see or hear in your site, your site can include the area that you can see and hear well while standing still or the area that you can walk in a relatively short amount of time. If you are observing in an open grassland or near a body of water, your site might be the maximum recommended size (15 acres), because you may be able to identify animals that are far away. In contrast, if your site is in a dense forest, it might be relatively small, as you may not be able to identify species at great distances.

Even if you can identify animals over a large area, an area should be divided into different sites if it includes habitats that are obviously different. For instance, if you are making observations at a pond in a meadow, the pond and the meadow should be registered as separate sites. In that case, just report your animal observations for the site at which you saw or heard them, for example, at either the pond or the meadow.

How do I define my site if I am only observing plants?

For plants, the size of your site does not matter much as long as the conditions are pretty similar throughout your site. If you are observing just one plant, your site can simply be the small area immediately around that plant, say within 3 feet of the plant. If you are observing several plants near one another, you can consider them all to be at one site, as long as the site conditions are pretty similar and the site is no larger than 15 acres or 6 hectares.

When selecting the plants to observe at your site, you will want to strike a balance between how much time it will take to walk between plants, while ensuring that the individual plants that you are observing are not too close together. If you choose to observe multiple plants, we recommend that you select plants that are not direct neighbors – that is, selected plants should not be closer than two or three times the width of one of the plants.

Do I need to get permission to observe in places other than my home?

If you do not own the property where the site is located, you must get permission from the landowner before marking any plants or reporting the site location information (such as latitude/longitude coordinates).

Many public agencies encourage observations of this kind and would be glad to know that you are reporting your observations to *Nature's Notebook*. However, you should get permission to make observations from the appropriate department of the federal government, state, or municipality that has responsibility for the property. Land managers often issue written permits for land access, which will help ensure that you can mark your sites and plants and can regularly visit your site.

Marking Your Site

Regardless of whether you are observing only plants, only animals, or both, you will make your observations repeatedly at the same site(s) over time. You will want to somehow mark your site(s) so that you can find it again in the future.

Because plant monitoring requires that you observe the same individual plants repeatedly, you will also need to mark each plant so that you can find it on each visit. We recommend that you mark each individual plant with a unique label. For example, you could mark pieces of flagging tape with “red maple-1”, “red maple-2”, etc. and then tie them to each of the red maples you are observing. Remember that if you do not own the property where your site is located, you must get permission from the landowner to put up any markers.



How can I best mark the plant(s) that I am observing?

For trees and shrubs, you can attach flagging tape or small, inconspicuous aluminum tags (which you can buy at a hardware store or forestry supply company) to the trunk or a branch on each plant. For grasses and forbs, you can place labeled toothpicks, popsicle sticks, or skewers in the ground next to each plant, or loosely tie colored string around the base of the plant. However you mark your individual plants, you will want to make sure you do not change the growing conditions of the plant. For example, avoid placing a broad stake next to a small plant that would shade it or cause root damage. You will need to replace your markers periodically as they weather and become unreadable.



How can I best mark my site?

There are many options, but the most important thing is that you mark your site so that you can find it again in the future. For most sites, it is probably easiest to mark the four corners with colorful flagging, scrap cloth, or something similar. You can also use natural or man-made landmarks, like the edge of a yard, big rocks, a bend in a trail, a road, or something similar, to define the boundaries. You will need to replace your markers periodically as they weather and become unreadable. Also, remember that if you are observing a site on public land, you will need to get permission before marking the site.

Choosing Plant & Animal Species

Choose one or more species from our list of plant and animal species:

- For plants, we encourage you to select *at least one species from our [Nature's Notebook](https://www.usanpn.org/nn/campaigns) campaigns* (<https://www.usanpn.org/nn/campaigns>).
- For animals, we recommend that you select several species that occur in your local area or in your state.

Make sure that you have correctly identified the plant and animal species at your site. If you are uncertain of your plant's identity, you can certainly record your observations on a datasheet until you have identified it. **Please do not record the information in the database until you are sure you are observing the correct species.**

How do I identify my plants and animals?

Correct plant and animal identification is important when reporting your observations in *Nature's Notebook*. We know it can be tricky to identify a plant or animal, and luckily there are many field guides and online resources that can help. Many communities also have gardening, birding, native plant or naturalist groups, cooperative extension offices, nature centers, local colleges, herbaria, state or national parks, or wildlife refuges where you can find people to help identify plants or animal in your area.



Select Individual Plants

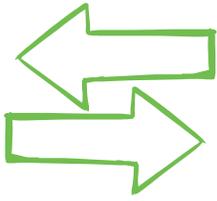
At your site(s) select one or more individuals of each of your chosen plant species to observe. Choose plants that appear to be healthy, undamaged, and free of pests and disease. If you want to observe several individuals of the same species, try to select individuals that are not direct neighbors, but are still growing in a similar environment.

For annuals (which only survive one growing season) **and biennials** (which survive for two growing seasons), avoid choosing the first or the last seedling to emerge in the spring since they may not be representative of the larger population at your site.

For small plants that grow in large masses of individual stems, it can be difficult to single out a few individuals to observe over time. Instead you can set up a patch of designated size and report on the phenophases for the patch as a whole. This method works well for grasses, clonal species that tend to grow as a groundcover, annuals, and very small forbs that tend to grow in clumps of individuals. Evaluate the phenophases in the patch as if all of the stems in the patch are a single individual. If there happens to be more than one species present in the patch that you would like to observe, you will need to register each species as a separate plant in your *Nature's Notebook* Add or Edit Plants page. As you evaluate the phenophases in the patch, make sure you are considering each species separately.

To set up a patch, mark the four corners of a square within the area the species takes up over the ground. We recommend a square that is three feet (or one meter) on each side, but the square can be smaller (such as one foot on each side) if the species does not cover an area as large as nine square feet (or a square meter). When you register the plant on your *Nature's Notebook* Add or Edit Plants page, simply click the check box for Patch? to indicate you are observing a patch rather than a single individual, and report the size of your patch. If the species covers enough area at your site, you could create several patches to observe separately just as you might choose several individual trees of the same species to observe.

Select Individual Plants FAQs



Are there other things I should consider when selecting my plant(s)?

Yes. Although we welcome all observations, we encourage observers to avoid selecting plants that are closer than 20 feet to a road or building. If your plant can be clonal, try to choose individual stems from different clumps. Where it is not possible to follow these guidelines for a specific individual, mention that in the comments section of your *Nature's Notebook* Add or Edit Plants page online.



What if the plant I am observing dies?

If an individual dies or is obviously declining in health (when others of the same species around it are still healthy), you should select a new individual to observe. However, be sure to report the old individual as dead on your *Nature's Notebook* Add or Edit Plants page and add the replacement as a new plant with a different nickname. If you are observing any annual or biennial species at your site, you will need to select a new plant on a regular basis since the individual plants die after one and two years, respectively.



How many individual plants of the same species should I observe?

For most observers, we recommend observing between one and three individuals of the same plant species at a site. Observers at research sites may wish to choose three to five individuals per site. Observing multiple individuals helps to give scientists an idea of the variation in phenology among individuals at your site. In some years and for some phenophases, multiple individuals will exhibit identical timing in their phenology, and in other years or phenophases they will not. Even if all your individuals seem to exhibit the same timing, that is still interesting to know and valuable data to collect!



When you choose the number of individuals to observe, you should consider the time it will take to make the observations. If you do decide to observe multiple individuals of the same species, try to select plants growing in a similar environment (for example, have similar amounts of sun or shade), but which are not direct neighbors—selected plants should not be closer than two or three times the width of one of the plants. For example, an observer might select three lilacs growing in his or her yard, each growing in full sun and spaced three plant widths apart from each other. If the lilacs are growing as a hedge, this would mean every third lilac plant could be selected. If you are observing the same species at multiple sites but have limited time, you may want to observe multiple individuals of each species at one of the sites, and only observe one of each species at the other sites.



Getting Organized to Go Outside



Accessing a Species Profile: To assist you with phenophase identification and to create consistency throughout the database, the USA-NPN and *Nature's Notebook* staff have developed specific phenophase protocols and definitions for all species on the list that include phenophase definitions that are unique to the species.

You can access these profiles in the *Nature's Notebook* mobile app or online by taking the following steps:

1. Log in to your *Nature's Notebook* Observation Deck
2. Select your site in the "My Sites" box
3. Select your plant or animal in the "My Plants & Animals" box
4. Select "View Species Profile" or "Print Phenophase Definition Sheet" in the "Details for this Organism" box



Printing Field Datasheets: If you would like, you can make observations on paper while in the field, and upload them manually into the *Nature's Notebook* mobile app or online.

You can download and print these datasheets by taking the following steps:

1. Log in to your *Nature's Notebook* Observation Deck
2. Select your site in the "My Sites" box
3. If you would like to print datasheets for ALL species at a given site:
 - a. Select "Print Field Datasheets" in the "My Plants & Animals" box
4. If you would like the datasheet for ONLY ONE individual at your site
 - a. Select your plant or animal in the "My Plants & Animals" box
 - b. Select "Print Field Datasheets" in the "Details for this Organism" box



Materials for the Field

Some materials you may consider bringing:

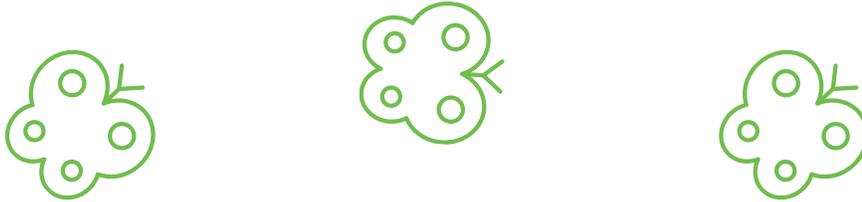
- Phenophase definitions and instructions
- Datasheets, clipboard, writing utensil
- Binoculars (optional, for observing animals or the tops of trees)
- Mobile device and mobile app
 - You can download the *Nature's Notebook* app for free at the Apple or Google Play store

Making Your Observations

Observing Animals:

Look and listen for all of the species on your Animal Checklist. You can do this by one of four methods:

- incidental (chance sighting while not specifically searching)
- stationary (standing or sitting at a single point)
- walking (a single pass or transect through your site)
- area search (multiple passes through your site, possibly crossing the same point more than once)



Record whether or not you saw or heard each animal species on your animal checklist, and for each animal you did see or hear, you will need to fill out the animal phenophase datasheet. On this datasheet, record the date and time, and for each phenophase, circle one of the following choices:

- **Yes (Y)** – if you saw that the phenophase is occurring
- **No (N)** – if you saw that the phenophase is not occurring
- **Uncertain (?)** – if you were not certain whether the phenophase was occurring
- Do not circle anything if you **did not check** for the phenophase.



Try to spend about the same amount of time looking for animals at each visit. We recommend three minutes as a standard, but you can spend as much or as little time as you like. You will probably not see most, or any, of the animals during each visit, which is ok. For each visit when you make an observation, record the amount of time you spent looking and which of the four methods you used.

It is very important to record this information, even if you did not see a particular animal species! Knowing when an animal is not present, or when an animal is not in a given phenophase is just as important as knowing when it is.

For animal phenophases you can also report on the abundance (or intensity) that you observe, like the number of individuals you see feeding or the degree of overlap in frog calls. Phenophase intensity choices vary by species and can be found on the profile page for each species, as well as on the *Nature's Notebook* app.

If there are phenophases and/or intensity measures on which you do not want to report for a species because you find them too difficult to observe or identify, or don't have time, just ignore them. You can cross them out on your datasheets, and do not circle or enter anything for them when you enter your data online.

Making Your Observations

Observing Plants:

Visit each of your individual plants and check their phenophases. For each visit when you make an observation, you will record the date and time on your plant phenophase datasheet or on the *Nature's Notebook* mobile app, and for each phenophase, circle one of the following choices:

- **Yes (Y)** – if you saw that the phenophase *is* occurring
- **No (N)** – if you saw that the phenophase *is not* occurring
- **Uncertain (?)** – if you *were not certain* whether the phenophase was occurring
- Do not circle anything if you **did not check** for the phenophase.

It is very important to record this information, even if nothing has changed on your plant since your last visit! Knowing when a plant is not in a given phenophase is just as important as knowing when it is. This allows someone who is viewing the data to understand more precisely when the phenophase began and ended.

For most plant phenophases you can also report on the intensity (or abundance) that you observe, like the number of open flowers you see or how close to full size the new leaves have grown. Phenophase intensity choices vary by species and can be found on the profile page for each species.

Once a phenophase has ended you should continue to look for signs of it and record whether or not it occurs again. Sometimes phenophases will occur a second or third (or more) time in a season, whether because of a killing frost, rain, pests, etc.

If there are phenophases and/or intensity measures on which you do not want to report for a species because you find them too difficult to observe or identify, or don't have time just ignore them. You can cross them out on your datasheets, and do not circle or enter anything for them when you enter your data online.



General FAQs

Why should I record my observations when nothing seems to be happening?

Having a full record of your observation dates allows scientists to more confidently estimate the date a phenophase began or ended. For example, if you first report that you heard wood frog calls on your April 6 visit, and your last visit (when you did not hear them) was April 2, we know that the wood frogs started calling sometime within those four days. If you only report the April 6 visit and no previous visit, we only know that the frogs started to call sometime between April 6 and the last time you reported visiting your site, which might have been three months earlier! This example also illustrates why more frequent observations are useful when conditions change rapidly, such as in the spring or fall. If you can make observations every two or three days, you improve scientists' ability to estimate the day a phenophase actually started or ended.

General FAQs

What if I never see some of the animals I am observing?

On most days you will probably not see or hear most of the animals you are observing. You may not see or hear some species all year. Even though it can be frustrating to look for animals that are not there very often, information about when and where a species is and is not is very important to scientists, so please continue to record that you DO NOT see phenophases for these animal species on each day you observe. In some ways the information about when and where a species is not present is more important than information about where it is, because those observations (called negative data) are more rare. This is why we suggest that you observe species from our animal species list that occur in your state, even if you do not see them often, or at all.

How often should I make my observations?

You should make observations as often as is convenient for you, preferably at the same time of day. Ideally, we would like observers to make observations once a week or even as frequently as every two or three days, particularly during the spring and fall when plant and animal phenology is changing quickly in many parts of the country. Plants and animals can often be active during the winter, but if you live in a cold region where their activity is reduced, you can lengthen the time between observations during this season. Most importantly, you should record all the observations you make—your observations, no matter how often you make them, provide valuable data!

What if I missed a phenophase?

If you miss the occurrence of a phenophase entirely, and you see evidence that the phenophase did occur, then make a note of this in the comments section of the Enter Observations page. For example, if your plant flowered while you were away on vacation, and you see dried flowers on the ground below the plant, feel free to note this in the comments section of the Enter Observations page. You can note similar occurrences with animals, for example, if you see chicks in a new bird nest, but never saw nest building.

What if a phenophase does not occur when expected?

If you are watching for a phenophase and it does not seem to be starting when you expect it would, continue to watch for it and record that it is not occurring. This could mean the phenophase is occurring later or not at all in a given year, and could be very valuable information. Many phenophases do not occur in every year—birds may not breed in a certain area, trees may not flower or fruit, turtles may not lay eggs. Information about when and where these phenophases did and did not occur is very important to scientists studying these species and the interactions between species.

Why should I continue looking for a phenophase even after it has passed?

Many phenophases may occur two or more times in a year. Many birds lay a second clutch of eggs in the summer after the first clutch has fledged. If a frost or pest kills many of the leaves on a tree, it will often have a second flush of breaking leaf buds and new leaves. In dry climates, some phenophases repeat after multiple rain events. Also, climate change is changing the timing and frequency of life cycle events, which is extremely important to capture! For example, as temperatures warm and growing seasons get longer, many species are reproducing more frequently—some birds are having more broods, some plants flower more often, and insects like butterflies and dragonflies may go through more generations in a single year. Once a phenophase has ended you should continue to look for signs of it and record whether or not it occurs again. Sometimes phenophases will occur a second or third (or more) time in a season, whether because of rain, pests, or climate change.



For further help with phenophases, check out these in-depth resources:

- **FAQs Page** (usanpn.org/nn/faq)
- **Botany Primer & Phenophase Primer** (usanpn.org/pubs/reports#Education)
- **Glossary** (usanpn.org/glossary)