



## HOSTING A BACKYARD WILDERNESS BIOBLITZ A Step-by-Step Guide



***“Nature is not a place to visit. It is home.” -Gary Snyder, poet***

Inspired by the film *Backyard Wilderness*, HHMI Tangled Bank Studios and the California Academy of Sciences introduce *Explore Your Backyard Wilderness*, a series of citizen science bioblitzes in partnership with libraries, museums, science centers, and community hubs across North America.

*Backyard Wilderness Bioblitzes* are short outdoor events in which people come together to explore nature and make and share observations of the plants and animals that are living in their communities. These events are often held in local parks and open spaces, and are fun, energetic gatherings of adults, kids, scientists and citizens—all working together to find and identify as many different species as possible.

*Backyard Wilderness Bioblitzes* give participants a chance to connect with each other and with nature, and to explore the incredible biodiversity found all around us—no matter where we live. They also provide invaluable data for researchers and land managers, who use the information to build species lists and distribution maps that help them better understand and protect our natural world.



*Backyard Wilderness Bioblitzes* are open to anyone, family-friendly, and powered by the popular citizen science app and web platform, iNaturalist. All people need to participate is their curiosity and their powers of observation. A smartphone, tablet, or digital camera will allow them to take photographs and make observations, and a bioblitz allows them to join with others in searching for species, even if they don't have a smartphone or camera of their own.

Through Backyard Wilderness Bioblitzes, participants will:

- Learn what plants, animals, and other living things are found in their neighborhoods and other favorite places.
- Meet others from their communities interested in exploring nature.
- Gain a new appreciation for the diversity of life all around them and discover that no matter where they live, they don't need to go far to find nature.
- Make and share nature observations using the iNaturalist app and/or website.
- Collect data that are important for better city planning, park management, conservation, and science.
- Learn about and field test the newest addition to the iNaturalist family, the kid-focused **SEEK** nature scavenger hunt app.

### **WHAT IF MY PARTICIPANTS LACK DIGITAL TECHNOLOGY?**

Within this guide, we'll point you to digital tools such as [iNaturalist](#) and [SEEK by iNaturalist](#), which help you discover and learn about plants and animals found all around you and help document the natural world. These apps streamline the sharing of observations, but your participants do not need a smartphone or a tablet to share their nature finds - photos of plants and animals taken using a digital camera can be shared via the [iNaturalist](#) website. Plus, most bioblitzes happen in groups, so even if someone does not have access to digital tools of their own, they can work with other team members who do. An iNaturalist login can be used by a family or group, so one person can help spot wildlife while someone else takes photos and uploads them. Or, team members can take turns in different roles. Make sure that as a facilitator, you recognize people without technology and pair them up with a group who does and a leader who can respectfully help manage this interaction. Many libraries, museums, and science centers have a set of iPads or Android tablets that can be used for public events like bioblitzes.

For those who want or need to be completely technology free, we also provide a [Field Guide & Bioblitz Bingo](#) card of plants and animals most often seen in your region. These Field Guide & Bioblitz Bingo cards are a fun way to engage participants of all ages, especially young people. The reverse side of each regional Field Guide is the Bioblitz Bingo card, formatted as a mini-field notebook that has space for bioblitzers to make sketches and take notes on what they find. And we also include a [Guide to the Common Plants and Animals of North America](#) with tips on how to look for different species. This guide can be used by all of your participants, whether they're using technology or not. Research your options and think about designing your programming to be accessible to as many people as possible.



## THE BIOBLITZ TOOLKIT

In this guide, you will find all the information and resources you need to host your very own **Backyard Wilderness Bioblitz**. Developed by the [citizen science team](#) at the California Academy of Sciences, these materials and methods are field-tested to ensure a rewarding and fun experience for organizers and participants alike. Together, we'll help you bring your community together and connect people to nature in their backyards, schools, parks, city streets, and anywhere else plants and animals can be found.

In addition to these materials, we will be hosting two Bioblitz Training Webinars. Join us live, or view them any time that's convenient as you plan your Bioblitz.

The Backyard Wilderness Bioblitz Toolkit includes:

- [Hosting a Backyard Wilderness Bioblitz: A Step-by-Step Guide](#) (this document)
- [iNaturalist Guide](#)
- [Bioblitz Planning Checklist](#)
- [A slide deck to help you introduce bioblitzes and iNaturalist to your participants](#)
- [A folder of resources to help set up your bioblitz](#)
- [A guide to the most observed species in North America, including tips on where to find them](#)
- [Field Guides & Bioblitz Bingo sheets for different regions of the United States and Canada](#)
- [A customizable template for bioblitz flyers](#)
- [SEEK Guide](#)



## STEP-BY-STEP

### **KEY COMPONENTS OF A SUCCESSFUL BIOBLITZ**

- A park or open space to explore
- A place to meet at the beginning of the bioblitz and afterwards for the Wrap Session
- Partners to help bring different strengths to your event.
- Group leaders who are comfortable using iNaturalist
- An energetic facilitator who will introduce the bioblitz and run the Wrap Session
- An iNaturalist bioblitz project page
- Snacks to fuel your bioblitzers
- Good communication and flexibility

This Guide is part of the Bioblitz Toolkit and should be used in conjunction with the other toolkit components, including the [Bioblitz Planning Checklist](#) and the [Bioblitz Roles and Responsibilities Worksheet](#).

### **IN ADVANCE**

#### **1. PICK A PARK OR OPEN SPACE TO EXPLORE**

Is there a park or open space near your location? Bioblitzes can happen in city parks, green belts and even along neighborhood streets. Think about interesting locations that are easy to get to on foot, by public transportation, or have available parking. Where do people spend time outside in your community? Is there a forest; a riverside park; a community garden; a place people hike? If you aren't sure how to choose a place, ask your local parks department for advice.

You can also use [iNaturalist](#) to see where people have already made observations in your community. Go to the observations page and zoom into your city or town. Look for areas with lots of pins, which represent observations. Those observations can give you an idea of what might be seen in that park, if you haven't been there. Similarly, you might want to search iNaturalist for parks and open spaces in your community that don't have many observations, so that your bioblitz can add new information about the nature in your town. You can hold a bioblitz anywhere there are plants and animals—even on the grounds of your library, museum, or community center.

#### ***A huge motivator for citizen science volunteers is being able to contribute to meaningful research.***

Backyard Wilderness bioblitzes are all about helping people discover their local nature, but city managers will often use iNaturalist to access the data and information that is produced as well. The data you collect with your community members helps with local science, planning, and conservation, and is also open and available to researchers all over the world and shared with global biodiversity databases. So the bioblitz is for both engagement and high quality data generation. The primary data output of a bioblitz is the beginnings of a species list, so if a park has never had a biological inventory done (or had one done a long time ago), the bioblitz can help get that started.



Once you've chosen your area to explore, do a site visit to plan out your event. On the day of the bioblitz, you'll divide the area into smaller zones to be explored by different groups. Having sub-areas allows you to cover more of the overall area and minimizes the chance of duplicate observations. A site visit will help you decide the best way to divide up the groups during the bioblitz.

## **2. CHOOSE A MEET-UP AND WRAP SESSION LOCATION**

For your meeting spot, choose a location near the area you will be exploring where participants can safely meet to get oriented, sign any waivers you may have, download the iNaturalist app if they haven't already, and get their introductory briefings.

*After* the bioblitz, the main purpose of the Wrap Session is to get the participants to upload their observations and share their finds with each other. The ideal location will have strong wireless that is designed for group use. Providing Wi-Fi allows people to upload without using their phones' data plans. We recommend testing the Wi-Fi prior to the bioblitz with as many devices at once as possible. It's also helpful (but not essential) to have a computer and projector, so that the whole group can see the iNaturalist project page as the data gets uploaded.

Ideally the wrap session will be in the same location as, or very near to, the area you explore together. The farther people have to go, the fewer will show up for the wrap session.

## **3. FAMILIARIZE YOURSELF AND YOUR TEAM WITH INATURALIST**

In order to host a bioblitz, you will want to register on iNaturalist and make sure that you and your team are comfortable using it and teaching others how to use it. The best way to become familiar with iNaturalist is to use it! Take a walk around your neighborhood or try it out on your site visit to your bioblitz location. Challenge yourself to make 20 observations and try to find and photograph at least three animals. Try adding observations directly through the app and also make observations by choosing photos from your camera roll. See how the AI Species Suggestion feature works. Upload your observations. Bring along a digital camera and upload your observations to the iNaturalist web site when you get back to your computer. Check for any comments and identifications on your observations once they've been submitted. Has anyone identified your finds? Continue to use iNaturalist until you feel comfortable enough to teach someone else.

For a detailed walk-through on how to use iNaturalist, see the [iNaturalist Guide](#) document in the [Bioblitz Toolkit folder](#).

## **4. ENLIST LOCAL PARTNERS**

- Nature Centers and Environmental Organizations
- Science Museums and Botanical Gardens
- Colleges and Universities
- Schools and Camps
- Volunteer Groups
- "Friends of" groups

Working in partnership with other local groups is a great way to build community and bring all kinds of expertise (plants, birds, fungus, history, iNaturalist, etc.) to your event. Partners can also help get the word out to different constituencies to ensure a good turnout.

Does the local park have a “friends of” group? How about people who do restoration or lead nature walks? Other local groups with a volunteer base, like an Audubon Society or a local chapter of the Native Plant Society, may have people who can help.

The right partners will help you cover all bases, especially if you are a first time bioblitz leader. If potential partners you’re reaching out to have not participated in bioblitzes before and would like to learn more, you could send them the [Introduction to iNaturalist and Bioblitzes Slideshow](#) for a quick overview. Use the [Bioblitz Roles and Responsibilities Worksheet](#) to manage partner roles during the bioblitz.

## 5. RECRUIT TEAM LEADERS

You can find leaders from within your own organization, from your bioblitz partners, or from others who know the area. You can also reach out to the most active iNaturalist users in your area (see the [iNaturalist Guide](#)) to see if they’re available to help lead. On the day of the bioblitz, each group will have a team leader or pair of co-leaders. Team leaders should be comfortable using iNaturalist so they can help others in their group, have some natural history skills and knowledge, know the area, and be willing to model how to search and make observations.

*Leaders do not have to be taxonomic experts (specialists who know a lot about one group of plant or animals), but if they are, they should think about how to share their knowledge without turning the bioblitz into a guided nature walk.*

Team leaders should know:

- How to model searching and observing
- How to use iNaturalist
- Where to go
- When to come back
- To remind people to upload their finds

Leaders can be taxonomic experts, seasoned iNaturalist users, park rangers, naturalists, environmental educators, teachers, professors, graduate students, etc. Leaders need to provide space for participants to feel empowered to make observations on their own, but should be prepared to assist if anyone needs help figuring out what they should actually do. We often try to have co-leaders with complementary expertise so that they can work together to manage the group and share information in a more informal way, instead of becoming “guides.” For example, a librarian who spends a lot of time in the park being bioblitzed might co-lead with a local naturalist. Together the leaders can model good naturalist skills, show participants how to use iNaturalist, and are familiar enough with the area to get everyone back to

the wrap session on time. If leaders—or any participants—can identify plants and animals found during the bioblitz, they can and should share that information. They can help on the trail (but be careful not to turn the experience into a guided nature walk) and also assist during wrap session, when they can make identifications and answer questions. If leaders have not used iNaturalist before the bioblitz, you can send them the [iNaturalist Guide](#) and the [Introduction to iNaturalist and Bioblitzes slideshow](#).

Make sure your leaders keep an eye out for people without devices or cameras, and pair these folks up with others who do have devices so that everyone can get the full experience.

We recommend setting up your groups by area, designating portions of the park for each group to bioblitz. That way, each group will be looking for and documenting everything they possibly can—from plants to insects to mammals and more. Depending on your participants, it's also a good idea to have a group that is more young kid-focused: not hiking very far, staying close to bathrooms, using the the [Field Guide & Bioblitz Bingo sheets](#) and the [SEEK app](#), and maybe utilizing some hands-on equipment (magnifying boxes for insects, nets to look for stream critters, etc.).

Recruit enough leaders that you can have groups of 5-10 people. It's always better to recruit more leaders than you will need and let leaders know they may join another group, depending on attendance.

It also helps to designate one person to stay at your sign-in location for the duration of the bioblitz, to help direct late-comers, answer questions, and remind people who need to leave early to upload and share their observations. Use the [Bioblitz Roles and Responsibilities Worksheet](#) to manage leader roles during the bioblitz.

## **6. SET A DATE & TIME**

Choose a time that works best for you and your partners and make sure your date does not overlap with any other local events that may compete for people's attention. Think about when plants will be flowering, summer vacations, school breaks and holidays, weather, etc. Also think about who will be attending—school or camp groups would be available at different days and times than families.

Remember that the easiest organisms for people to photograph on their phones are plants, and that plants are easiest to identify when they're flowering or fruiting. Also, you'll get more people showing up and willing to use their smartphones when it's not raining! If you choose a date when rain (or other inclement weather) might be a possibility, work with your partners to make a communication plan for the day. The plan should cover when you will make the decision to postpone and how you will notify registrants if your event is postponed? Let your partners and participants know ahead of time about the plan. It's also a good idea to choose a rain date when you first start your planning.

Determine how long you want your bioblitz to run. Half day bioblitzes—between 2 and 4 hours—seem to be the best for busy families. You could also host a long event spanning 14-24 hours, but these are quite different to manage. With longer bioblitzes, you should plan to have registered shifts—a morning group, an afternoon group, an after dark group (if you're going to look for owls/bats/moths/etc.)

You may also want to hold short wrap sessions after each shift. An interesting thing we've noticed, though, is that we usually end up with similar numbers of observations and species, regardless of whether the bioblitz lasts all day or just spans a morning or an afternoon.

**A typical schedule for a 9AM start, half-day bioblitz would look something like this:**

- 8:30 AM - Participants begin to arrive
- 9:00 AM - Introductions, schedule, goals
- 9:30 AM - Start bioblitzing! Group leaders take their groups to their designated areas within the bioblitz space
- 12:00 PM - Stop bioblitzing. Send people to Wrap Session location
- 12:15 PM - Wrap Session
- 1:00 PM - Wrap session and bioblitz ends

Get more details about what happens during these different parts of the bioblitz in the [Bioblitz Planning Checklist](#).

## **7. MAKE AN iNATURALIST PROJECT AND SET UP A REGISTRATION SYSTEM**

The Bioblitz Project on iNaturalist will serve as an information hub for your event. In the lead up to the bioblitz, it will provide an easy-to-distribute link with details about the event and how to sign up. During the bioblitz, it will automatically aggregate all of your participants' observations. After the event, it can be used as a reference site for the community. In the Bioblitz Project description on iNaturalist, you can add a link to any registration system you'd like to use (e.g., [Eventbrite](#), [Brown Paper Tickets](#), etc.) Setting up a Bioblitz Project in iNaturalist is easy - instructions can be found in the [iNaturalist Guide](#).

## **8. OUTREACH! GET THE WORD OUT!**

In order to get bioblitz participants, you need to promote the bioblitz. You can send emails to your members, and to the networks of your partners and other related local organizations. Advertising your event on social media from you and your partner organizations is a great way to find a younger, tech-savvy audience. Reach out to local media outlets to see if they'll promote the bioblitz ahead of time and potentially come out to cover it day-of. Local event calendars are always looking for items to add. You can hang flyers at coffee shops, schools, community centers, the post office, or other places people in your community look for information. We've provided a [Backyard Wilderness Bioblitz flyer template](#) in the resources folder that you can customize for your event.

## **9. SEND OUT REMINDER EMAILS**

A couple of days before the bioblitz (no earlier, since we've found many people sign-up last minute!) send out an email to everyone who has registered. Include the following:

- When and where to meet.
- Goals of the day.
- iNaturalist: Ask everyone to download iNaturalist and create an account before coming to the bioblitz, and to make an observation or two to familiarize themselves with the app. It's helpful to send the link to this [video](#), which illustrates how to make an observation on a mobile device,



and this [video](#), which details how to take good photos. In addition, you could send the link to the 'Getting Started' page on iNaturalist (<https://www.inaturalist.org/pages/getting+started>).

- Let them know that not everyone needs a phone—that you will pair people up so that everyone can explore and discover and contribute. And remind them that digital cameras work fine too—they can upload their observations to the iNaturalist website after the bioblitz.
- Remind people what supplies to bring: phone, water, good shoes for walking, layers, etc.

We've provided a [Backyard Wilderness Bioblitz Email Reminder Template](#) in the resources folder that you can customize for your event.

## **THE DAY BEFORE**

The day before the bioblitz, it's good to gather all the gear you'll need both for the Bioblitz and the Wrap Session (signage, sign-in sheets, computer and projector, food, etc.) and to touch base with all of your partners, leaders and experts to make sure everyone feels prepared and has the information they need.

## **BIOBLITZ DAY**

### **10. BIOBLITZ!**

There will be a lot to remember on the day of your Bioblitz, so we've provided a [Bioblitz Planning Checklist](#). The checklist document is very detailed, but below we have laid out the high level overview and keys to a successful bioblitz.

Before your participants arrive, make sure there are signs to tell them they're in the right spot and direct them to the sign in location. It's also nice to provide some coffee, donuts, fruit, or other light snacks for your participants when they arrive.

Once the group has gathered, get the orientation going as soon as possible so you can keep the energy up and get people exploring quickly. If your starting location has a place to give a presentation, you can use the [Introduction to iNaturalist and Bioblitzes Slideshow](#). Be sure to follow the [Slideshow Notes](#) to help you remember everything. It's ok if you can't show the slideshow—the [Slideshow Notes](#) will probably still be useful for framing your introduction.

With or without the slide show, here are some key points to touch on:

- A bioblitz is about exploring together. *Everyone* can search and find! Be curious!
- All of the observations made in the bioblitz area during the bioblitz window of time will be automatically added to your Backyard Wilderness bioblitz project. The only thing people need to do is make observations and upload them—there is no project they need to join.
- In the Privacy Settings for iPhone and Apple devices, make sure that 'location services' is turned **ON** for the iNaturalist app and the camera. Android devices will confirm your settings are correct through the iNaturalist app.
- Each individual plant or animal should have its own observation.

- You can take more than one photo of an organism to help the community identify what you've found.
- Be sure to try out the Artificial Intelligence Species Suggestion functionality, but use it wisely. Choose suggested species that have both been *seen nearby*, and are *visually similar* to the one you find.
- Remember, be curious and have fun!

Before groups head out to make observations, introduce the leaders of each group and describe where they will be headed. One group may be walking further or tackling a steep trail, etc. Maybe sure participants know what type of experience they are getting into, if the groups will be going to different places. That way participants can decide which group they would like to join. Try to keep the groups relatively even and no bigger than 10 people for two leaders. If you have a group that is geared for small children, let people know that now, but also let families choose whichever group they like for their family. Don't force families to be in the 'kid group' if they don't want to. If people don't have a phone, tablet, or camera, make sure they are paired up with someone who does.

Be sure to go over safety reminders that are pertinent to your bioblitz area (e.g., be careful reaching into places you cannot see, look out for poison oak/ivy, be aware of ticks, etc.); any rules your park may have (e.g., stay on trail, no climbing trees, etc.); where to get first aid help; location of the restrooms; and other important information and logistics.

Remember, one person should stay at your sign-in location for the duration of the bioblitz, to help direct late-comers, answer questions, and remind people who need to leave early to upload and share their observations. (If you are meeting at a staffed location, like a library, community center, or museum, this may not be necessary, just make sure staff can direct late-comers.)

## 11. WRAP SESSION

Beyond getting people to upload their observations, wrap sessions allow for sharing of observations (who saw something cool or unexpected?); helping people get IDs (this is a great time to point out people with expertise in certain areas); handing out additional materials (the [Backyard Wilderness Educational Guide](#) and [Family Activity Guide](#), book lists, etc.); and thanking participants. Providing snacks is always nice too! You can use a computer and projector to show everyone your iNaturalist bioblitz project page and look at the stats. The observations made during the bioblitz, leaderboards (who has made most observations and found the most species), and overview stats (total number of observation, total number of species, species breakdown by taxa, etc.) will all be on your project page once your bioblitz starts, and are constantly updated as new observations come in. The Wrap Session is also a good opportunity to provide more information about your and your partners' organizations.

Remind the bioblitz participants to check the bioblitz project and their observations after the bioblitz to see if people have left them comments or identifications. Let everyone know that iNaturalist is not just

for bioblitzes—they can continue to use it in parks and open spaces, on their walk to work, in their backyards or schoolyards, on vacations—wherever they see nature.

And if you haven't done so already, please introduce your participants to SEEK, the new kid-friendly nature scavenger hunt app from iNaturalist. SEEK is a fun and educational app that encourages outdoor exploration and learning by sending kids out to find, document and identify the wildlife around them.

The app is COPPA-compliant. It uses iNaturalist data to create treasure hunts customized to the user's area, then uses artificial intelligence to identify what they see and award badges for positive identifications. The app doesn't share any location or other information with the iNaturalist community, which makes it a safe and easy citizen science entry point for kids and adults alike. SEEK connects users to nature nearby, helps them learn about the species they find, and rewards them with badges when they are successful! Currently in iOS only. Learn more in the [SEEK Guide](#).

## ***AFTER YOUR EVENT***

### ***12. FOLLOW-UP WITH YOUR PARTICIPANTS***

A week or so after the bioblitz, send out a follow-up thank you email to participants. Highlight some interesting things that were found during the bioblitz, and be sure to share the total numbers of observations and species. Adding photos of organisms and of the bioblitz itself is always nice. Remind people that they should check back in with the iNaturalist project page to see if anyone has added IDs to their observations, and to help add IDs to others' observations. Encourage participants to keep using iNaturalist to make observations on hikes, walks and in their backyards. Encourage participants to try the SEEK app, and make sure they know about any upcoming bioblitzes you may have planned.

### ***13. DO IT AGAIN***

Now that you have a bioblitz under your belt, plan another! It can be really fun to bioblitz the same place every year or every season, or to find a new place to explore. Get your community to keep exploring and to stay curious about their very own Backyard Wilderness!

## IN SUMMARY

- PICK A PARK OR OPEN SPACE TO EXPLORE
- CHOOSE A MEET-UP AND WRAP SESSION LOCATION
- FAMILIARIZE YOURSELF AND YOUR TEAM WITH INATURALIST
- ENLIST LOCAL PARTNERS
- RECRUIT TEAM LEADERS & EXPERTS
- SET A DATE & TIME
- MAKE AN INATURALIST PROJECT PAGE AND SET UP A REGISTRATION SYSTEM
- OUTREACH! GET THE WORD OUT!
- SEND OUT REMINDER EMAILS
- BIOBLITZ!
- WRAP-UP SESSION
- DO IT AGAIN

## ACKNOWLEDGMENTS

The Step-by-Step Guide to Hosting a *Backyard Wilderness* Bioblitz was developed by the Citizen Science team at the California Academy of Sciences, with support from HHMI Tangled Bank Studios.

