



HOW TO DESIGN A WILD BACK YARD

Participants come to Wild Back Yards from a wide range of gardening or land management experiences, native species familiarity, economic backgrounds and mobilities. While the importance of supporting biodiversity by increasing native plant cover and decreasing non-native plant cover may be apparent, it can be difficult to know where to start. Each Wild Back Yard exists along the gradient from nearly no wildlife value to the highest wildlife value (i.e. an entirely intact, natural ecosystem). Most human-made landscapes will not be able to fully transform into true natural ecosystems because of constraints, but each additional action taken on the [Wild Back Yards Participation Form](#) will increase its utility for biodiversity. The work may never be done, but it is impactful, nonetheless. This guide is designed to help you formulate a vision and plan to help achieve realistic re-naturalization goals.

Before breaking ground on your Wild Back Yard, there are several factors you should consider. There is a great deal of information you can learn about your space that may help to avoid breaking rules (like those of an HOA board) or cutting through a cable line. If you don't already know where to start, consider the various aspects of a Wild Back Yard design. A Wild Back Yard should be designed and implemented with consideration of the following elements:

- Spatial Constraints
- Legal Constraints
- Personal Constraints
- Environmental (including botanical) Constraints
- Goals
- Styles
- Information
- Common Mistakes
- Design
- Implementation

STEP 1: Spatial Constraints – Define Your Area

Consider the constraints of your space. It's important to know where you can make changes before you start to design your Wild Back Yard. This total area will be defined by property boundaries if you own land, the boundaries between common areas and limited common areas if within an apartment building or if your property is part of a homeowner's association (HOA), or where you are allowed to plant if you have an "adopted" Wild Back Yard space.

If you live in an HOA or an apartment, check with your HOA Board or superintendent to find out where the boundary is for your allocated space. If you have adopted a Wild Back Yard, check with the landowner to be certain where you are and are not allowed to make changes.

If you own land and are unsure of your property boundaries, these can be found through the Summit County Parcel Viewer. By entering your address or parcel number, you will find a map of your property boundaries (**Figure 1**). The Summit County Parcel Viewer can be found at:

<https://summitmaps.summitoh.net/ParcelViewer/>



Figure 1. A selection of the map provided on the Summit County Parcel Viewer. Image credit: County of Summit, Cuyahoga County, Esri, HERE, Garmin, GeoTechnologies, Inc., USGA, EPA.

The boundaries displayed on a county GIS are often imprecise and cannot be relied upon entirely. For legal purposes or in any areas about which you may be in doubt, it may be prudent to hire a land surveyor and formally mark your property boundaries. It is a good idea to install permanent markers at corners or other important areas of your border if you have had a survey completed.

STEP 2: Legal Constraints – Define Disallowed Actions

Now that you know the total area that you have to work in, identify potential changes that may be prohibited by zoning ordinances, HOA rules and regulations, the Ohio Revised Code (ORC), buried utilities or rights-of-way (ROWs). You may not have the liberty to make all the changes you want. For instance, many municipalities prohibit grass from growing over a specified height, many HOAs prohibit plants that exceed the height of common fences, the ORC includes a rule prohibiting a few native plants under certain circumstances, and utility providers prevent some types of vegetation from being planted within ROWs. Check to see if any limitations apply to your Wild Back Yard before making changes to ensure that you won't later be surprised. If you are going to dig in your Wild Back Yard, be sure to call Ohio 811 ahead of time to get buried utility lines marked. There are many ways to safely grow a Wild Back Yard while staying within the confines of existing rules and regulations.



STEP 3: Personal Constraints – Define Human Use Areas

Personal constraints are created by what you are willing and/or able to do in your Wild Back Yard. Some Wild Back Yard designs may be expensive or labor intensive. Everyone experiences some financial or physical limitations, and it is a good idea to determine how much money you are able to spend and how much time you can devote to your Wild Back Yard. Fortunately, there are inexpensive ways to accomplish all the action items on the Wild Back Yards participation form. But there is often a tradeoff between cost and labor so depending on the task, saving money can translate to spending more time.

It can also be helpful to delineate areas that you wish to remain the same, or where you may install a new structure in the future. Start with an existing map and draw lines to represent boundaries for any lawn you plan to keep playing on, garden beds you plan to keep for food production, areas that you plan to build on in the future, or any place that you don't anticipate making part of your Wild Back Yard.



Figure 2. A marked-up selection of the map provided on the Summit County Parcel Viewer. The locations of an existing vegetable garden, and existing lawn, and a future pool have been marked for avoidance. The electric ROW has also been marked as a reminder that there is a height limitation to vegetation under power lines. Image credit: Summit Metro Parks, County of Summit, Cuyahoga County, Esri, HERE, Garmin, GeoTechnologies, Inc., USGA, EPA.



STEP 4: Environmental Constraints

Every site has different environmental conditions, and those conditions will vary more across a larger site than a smaller site. It is important to know about the conditions of the area that you intend to change so that your efforts are successful. In the areas you plan to change, it is good to note the following:

- What is the existing vegetation like (e.g. landscape bed, meadow, scrub-shrub, forest, etc.)?
- What is the soil type/texture?
- What is the topography (and where does your water drain)?
- What is the soil moisture?
- What are the soil nutrients?
- How much sunlight does the area get?

Sketch these important characteristics of the existing landscape on a map of your Wild Back Yard.

Vegetation

Describing the existing vegetation can be a challenge, especially in the absence of experience with local plants. To simplify, vegetation can be described as meadow, shrubby, forested, maintained landscape or bare. You may want to keep and/or encourage some of the existing native plants as you implement your Wild back Yard, so it could be valuable to describe the vegetation at a finer scale. Fortunately, there are a lot of tools available which make identifying plants easy for a novice.

iNaturalist is an online community, accessed through their website (<https://www.inaturalist.org/>) or smart phone app. Observations may be posted for identification by the community. Consider joining the SMP Wild Back Yards Identification project (<https://www.inaturalist.org/projects/smp-wild-back-yards-identification>) for help identifying plants in your landscape, in nature or at a nursery. You might also consider creating an iNaturalist project for your Wild Back Yard by following the instructions here: <https://www.summitmetroparks.org/wp-content/uploads/Wild-Back-Yards-iNaturalist.pdf>.

Seek is a smart phone app that is powered by the same image recognition algorithm as iNaturalist but is geared towards quick identification of observations (https://www.inaturalist.org/pages/seek_app).

As an alternative approach, consider *Newcomb's Wildflower Guide* by Lawrence Newcomb as an easy botanical guide to use for wildflowers, *Tree Finder* and *Flower Finder* by May Theilgaard Watts as easy guides to use for trees and wildflowers, and *Winter Tree Finder* by May Theilgaard and Tom Watts as an easy guide to use to identify trees when the leaves are off. All four books are inexpensive and readily available at online book vendors.

Soil Texture

Soil texture can be characterized through a variety of more complicated methods, but the easiest way to determine your soil texture is to conduct a "jar test." To characterize your soil texture using the jar test, follow the procedure below with a sample of soil from any area(s) in which you plan to plant:

- Obtain a clear, straight-walled jar with a lid.
- Take a sample of soil and fill about 1/3 of the jar.
- Add water to the jar, leaving a little headspace (~1/4 volume of the jar),
- Seal the jar and shake the contents vigorously until the soil and water are a fully mixed slurry,
- Set the jar on an even surface and wait 1 minute,
- Mark the top of the first layer with a line – this is sand,
- Wait two more minutes and mark the top of the second layer with a line – this is silt,
- Wait 48 hours with the jar remaining unmoved on the level surface, and mark the top of the third layer – this is clay,
- Measure the total depth of soil with a ruler and divide each sand, silt, and clay by this total depth to give you a percentage for each component.



By measuring the depth of each layer with a ruler, the results of the jar test can be used to determine the percent of each component. To characterize your soil texture so that you can better select native plants that will succeed in your site, it is usually sufficient to know the percentage of each component. For more information on your soil texture, you can use the calculators at the following link: <https://www.nrcs.usda.gov/resources/education-and-teaching-materials/soil-texture-calculator>

Topography

Topography characterizes the severity and direction of slopes on your site. A flat landscape may have very little difference in vegetation from place to place, while the vegetation growing on a south-facing slope can be drastically different than what grows on a north-facing slope. Site topography also effects where water flows and pools during and after rain events. It usually suffices to draw lines on your map indicating the direction and severity of slope as it can be observed while walking the site, as shown in **Figure 3**.



Figure 3. A marked-up selection of the map provided on the Summit County Parcel Viewer. The direction and severity of site slopes have been drawn in. Image credit: Summit Metro Parks, County of Summit, Cuyahoga County, Esri, HERE, Garmin, GeoTechnologies, Inc., USGA, EPA.

When planning your Wild Back Yard, it is important to identify and maintain the general drainage patterns across your site. For more detailed information, you can browse topographic maps from the United States Geological Survey, here: <https://ngmdb.usgs.gov/topoview/viewer/#4/41.01/-94.00>



Soil Moisture

Like soil texture, there are several more advanced methods to characterize soil moisture. For designing a Wild Back Yard, it is sufficient to observe what happens to water on your site during and after a rain event and use some rules of thumb.

Areas in which rain never pools, and the soil is never saturated immediately after a rain can be considered dry. Average moisture areas are those in which water sometimes pools during a rain but drains within a few hours afterward and the soils are not saturated 24 hours later. Soils may be considered wet if saturation lasts for a long time after a rain event, or if there is standing water for at least two consecutive weeks during the growing season.

There is a relationship between soil texture, topography and soil moisture. Steeper slopes nearly always drain well regardless of soil texture, whereas the drainage of an even landscape will be much greater with sandy soils than with clayey or mucky soils. If you have dry or wet soils in areas that you plan to plant, it may be advantageous to mark those areas on your map so you can select plants or seed mixes suited to site conditions. You can avoid potential complications by selecting native plants and habitat features that fit the general drainage patterns of your Wild Back Yard instead of making significant changes to those drainage patterns. Significant changes to existing drainage patterns (e.g., damming a stream) usually requires State and/or Federal permitting and may adversely impact offsite areas.

Soil Nutrients

Soil nutrients can be described as the reserve of nutrients in the soil and availability to plants is affected by uptake factors like soil pH and electrical conductivity (EC). Soil nutrition influences proper plant selection because it affects which native plants will thrive in your Wild Back Yard. Some plants prefer nutrient-poor soils and others prefer nutrient-rich, just as some plants prefer acidic soils and others prefer alkaline. Inexpensive home test kits for soil nitrogen (N), phosphorus (P), potassium (K), and pH can be found at most garden centers. Alternatively, soil samples can be sent out for laboratory testing at several university extensions. Finally, existing native vegetation may indicate soil nutrition in your Wild Back Yard.

Sunlight

The amount of sunlight your site gets is straightforward. Areas south of hills, buildings, trees, and other obstructions (i.e. south-facing areas) will tend to get more sunlight while north facing areas will likely have more shade. East-facing areas will get morning sun with afternoon shade, while west-facing areas will get morning shade and afternoon sun.

If you are able, you may want to monitor an area each hour from sunrise to sunset and record the hours during which the area is shaded.

STEP 5: Setting Goals for your Wild Back Yard Vision

You should now be aware of areas that you could change to better support biodiversity, specific actions that you may not be able to take, areas that you want to continue to maintain for human use and focus on for biodiversity, and the environmental conditions of your site – this is all the information you need to start the design process.

With this information at hand, you are prepared to develop a vision for your Wild Back Yard. What goals do you want to accomplish with your Wild Back Yard? Other than supporting the ecosystem services (i.e. all of the direct and indirect benefits of ecosystems to humans) upon which we all rely, there are specific functions you might be seeking to restore to your landscape. Do you want to provide habitat for a specific animal or group of animals? Do you want to reduce your ecological footprint? Do you want to reduce maintenance? Do you want to reduce stormwater? Do you want a beautiful and functional native garden?



It can be helpful to set some general goals for your Wild Back Yard before deciding which style(s) you might utilize. Many of the general goals you might have for your Wild Back Yard are likely on the participation form. Some other general goals may include:

- Increasing structural diversity (i.e., having multiple layers like canopy, subcanopy, shrub, vine, groundcover, etc.);
- Reducing yard maintenance;
- Providing habitat for a specific organism or group of organisms in your landscape (e.g., monarch butterflies, pollinators, five-lined skinks, amphibians, etc.);
- Connecting adjacent habitats;
- Restoring soils; or
- Eliminating invasive species.

The benefits of a Wild Back Yard can be so varied and numerous that you may have goals that are not listed in WBY content. The Wild Back Yards initiative is adaptable, and many general goals can be met simply by developing a strategy before implementation. Write down your WBY goals before choosing a style and then establish a timeline and budget for accomplishing specific Wild Back Yards actions towards your goals.

STEP 6: Choosing a Style for your Wild Back Yard

Wild Back Yards exist along a gradient from the least ecosystem services offered (e.g., an asphalt pad) to the maximum ecosystem services provided by a lush, intact ecosystem. Any Wild Back Yards action taken is a step towards restoring ecosystem services through supporting biodiversity. But Wild Back Yards are created across a wide range of sites - from apartment balconies to working farms, condominium developments to urban lots. Each site and participant will differ in the constraints discussed above, and some Wild Back Yards styles will be better suited for certain site types than others. There are three main styles of Wild Back Yard, each with benefits and challenges. Depending on the size of your Wild Back Yard, you may be able to use multiple styles.

Naturalization – This style places the focus on allowing natural processes to remain, occur and develop. A naturalization trends toward less management, and it is dynamic. Natural areas provide the most value for biodiversity but can require more space than other styles. Within a natural space, there tends to be a trade-off between the number of plant and animal species you can support and the area of habitat in your Wild Back Yard that is like other natural areas.

A naturalization may be designed to emphasize biodiversity or to extend nearby existing habitat, so there are two naturalization subcategories:

- **Boost biodiversity** – If you place more value on planting as many different native species as possible to support a wider variety of wildlife, you may end up with a novel ecosystem that is a patchwork of plant and animal relationships that don't often coexist in any fully intact ecosystem. Local biodiversity can increase dramatically, but some of the wildlife adapted to use the plants you install may not be able to get to your Wild Back Yard if there are not populations of the same native plants nearby. If your priority is boosting biodiversity, you might select certain plant species based on the number of different wildlife species they support. This style can be modified to look more like a garden, or it can be a naturalization.
- **Extend existing habitat** – If you place more value on extending a habitat type that already exists within or near your Wild Back Yard, you may end up with lower biodiversity than you could otherwise support but you will end up providing more resources for wildlife that are already nearby. For instance, you may have a beech-maple forest across the street from your Wild Back Yard. By planting more of the same native species in your Wild Back Yard, you can extend the existing beech-maple habitat. This style reduces habitat fragmentation and contributes to the creation of



habitat corridors for wildlife species that are already using the nearby habitat, some of which may be struggling to find enough resources to thrive. As it matures, this style often trends more towards naturalization than a manicured garden space, though it can be modified in places to coexist with human uses.

Dynamic/rustic native landscape – This style of Wild Back Yard balances biodiversity and ecosystem functioning with human aesthetics. It is planted with interesting and beautiful native plants, but they are allowed to move over time. A dynamic native landscape is more manicured than a naturalization, but allows processes of seed dispersal, germination, competition and death to occur. A dynamic native landscape is not intensively managed but may be sporadically managed to prevent succession into full naturalization.

Manicured native landscape – This style balances the ecosystem services provided by native plants with the aesthetics of a conventional landscape. There are fewer native plant species that are suitable for a manicured native garden than a naturalization or dynamic native landscape because many native plant species will begin to move around once established. Replicating a conventional landscape with native plants involves a more limited plant palette but is a significant move towards making your Wild Back Yard more biodiverse. This style of Wild Back Yard is most often employed when local ordinances or other regulations mandate a tidy landscape, when the Wild Back Yard is in a small space or when the WBYP participant wants their landscape to support biodiversity but look conventional. A native container garden that you might see on an apartment balcony is a manicured native landscape. A manicured native landscape can be implemented at any scale, but costs and maintenance tend to increase with size. More native plant species may be incorporated into a manicured native landscape with the tradeoff that more maintenance will be required to keep certain native plants in place.

STEP 7: Gathering Information

With constraints outlined, conditions described, goals set and a style selected, there may still be some information needed before you start to design your Wild Back Yard. You may want to extend a nearby habitat but not be familiar with local flora and how to identify the plants growing nearby. You may want to install native plants that are difficult to source. You may want to support songbirds, but not know which native plant species are best suited to achieve this goal. There are a variety of different methods available to manage invasive species, plant native species and more. The number of questions that may arise is endless, but there are lots of great resources available.

The Summit Metro Parks Wild Back Yard experts are available to answer any specific questions you may have. Reach out any time WildBackYards@summitmetroparks.org!

To check the existing plant community around your Wild Back Yard:

<https://www.inaturalist.org/>

To check if a plant is native to our region:

<https://www.summitmetroparks.org/wp-content/uploads/Comprehensive-Regional-Native-Plant-List.pdf>

<https://plants.usda.gov/home>

<http://www.bonap.org/>

To find native plant vendors:

<https://www.summitmetroparks.org/wp-content/uploads/WBY-Native-Plant-Vendor-List-04-17.pdf>



To determine which non-native plants should be removed from your Wild Back Yard:

https://www.summitmetroparks.org/wp-content/uploads/WBY_Complete-List-of-Invasive-Plants-07-27-2023.pdf

https://www.summitmetroparks.org/wp-content/uploads/WBY_Guide-to-Common-Invasive-Plants.pdf

https://www.summitmetroparks.org/wp-content/uploads/WBY_Invasive-Management-Plan.pdf

To see which native plants are suitable for small spaces:

https://www.summitmetroparks.org/wp-content/uploads/WBY_Container-Gardening.pdf

To check how many moth and butterfly caterpillars (which are vital for bird populations) are hosted by which native plants:

<https://nativeplantfinder.nwf.org/>

STEP 8: Avoid Common Mistakes

It is important to consider some common pitfalls before moving on to the design process in Step 9. Here is what not to do:

Do not assume that conventional nursery staff have a good understanding of which plants are native. You may want to familiarize yourself with how to read a plant label and how to check if a plant is native. Many conventional nurseries have native plant sections, but the plants offered may be hybrids, cultivars, non-native, and/or treated with pesticides that will limit functionality of the plant in your Wild Back Yard. Check the plant label for the scientific name and verify that it is native; and check with nursery staff to ensure that the plant has not been treated with pesticides. The effects of pesticides on purchased plants will go away after some time, but by bringing home pesticide-treated plants you may inadvertently harm the wildlife you intend to support.

Do not abruptly cease management of an area in the hopes that it will naturalize on its own. You may have an undisturbed soil profile, often indicated by a community of moss, thin grasses, and some wildflowers; and it could work to stop mowing this area, provided there is no ordinance preventing you from doing so. However, the typical lawn is a thin layer of topsoil laid over compacted subsoil and seeded with non-native species. Allowing a typical lawn to grow out will result in a mostly non-native plant community with some wildlife value in its structure, but little forage, and may be unsightly relative to an intentionally planted pocket prairie or a native garden bed.

Do not assume that the entirety of the existing landscape is non-native and needs to be replaced. Spending at least one growing season observing wildlife and identifying existing plants may help to decide what should be changed and what should remain.

Do not inadvertently create future problems. Some habitat features may invite wildlife where you may not want them or create other problems. For instance, placing wood chips or mulch right up against the base of a structure in your Wild Back Yard may entice wood-boring insects to enter that structure. For another example, planting a seedling tree next to a structure can cause foundation issues as it grows larger, or a utility provider may cut the tree down if planted in a ROW.

Do not overengineer your Wild Back Yard. Artificial habitat features like bird houses, bat boxes, and bee hotels are optional action items included for use in sites where no suitable natural habitat can exist. For instance, a Wild Back Yard with a mature shagbark hickory tree already has bat habitat and there is no need to install a bat box, but a bat box may be beneficial in a small suburban lot without mature shagbarks nearby. Leaving fallen leaves, perennial stems, and/or bare patches of soil provide better insect overwintering habitat than bee or butterfly hotels. Wherever possible, protect and encourage existing natural habitat features instead of installing artificial habitat features.



STEP 9: Design

The design process can be challenging, but it is also rewarding. You might find that a design will help to implement your Wild Back Yard in a stepwise, linear process. Creating a design and following the design during implementation can help to avoid problems such as having too many plants to place in a small area or having to redo a previous installation.

Your design should start with the marked-up map that results from following Steps 1-4. Then, follow steps 5 and 6 to determine which habitat features you wish to include in your Wild Back Yard. Be sure to plan for any of the following habitat features you want to include. The various habitat features a Wild Back Yard might include can be mixed and matched within or among the various Wild Back Yards styles described in Step 6. Also, any Wild Back Yard is ultimately limited by space, so certain habitat features may be omitted in favor of others if they are abundant nearby (e.g. bird feeders are typically unnecessary with sufficient seed and berry producing native plants; a water feature may not be necessary if adjacent to a pond, stream, or other surface water; a rock pile may not be necessary if adjacent to an agricultural field with existing rock piles; etc.).

Habitat features of your Wild Back Yard may include the following:

- Forested naturalization
- Scrub-shrub naturalization
- Meadow/prairie naturalization
- Forested wetland naturalization
- Emergent marsh naturalization
- Native container gardens
- Rain barrels
- No-mow areas
- Meadows/prairies
- Native thickets
- Native hedges
- Native food forests
- Vernal pools
- Rain gardens
- Swales
- Brush piles
- Rock piles
- Bird feeders/houses
- Bat boxes
- Owl boxes
- Toad abodes
- Bee hotels
- Butterfly hotels
- Ponds/water features
- Reforestation areas
- Bare soil patches
- Bird baths
- Native garden beds
- Dark zones
- Stream/pond/lake buffer strips
- Native lawns (intact soil profiles)
- Compost piles
- Native garden beds
- Dynamic/rustic native landscape
- Manicured native landscape



The possibilities for habitat features are not limited to the list on page 10. There are numerous ways to support biodiversity in your Wild Back Yard and unlimited combinations of habitat features. See **Figure 4** for an example of what a Wild Back Yard design might look like.



Figure 4. A marked-up selection of the map provided on the Summit County Parcel Viewer. The various habitat features that might be included in a Wild Back Yard design have been drawn in. Image credit: Summit Metro Parks, County of Summit, Cuyahoga County, Esri, HERE, Garmin, GeoTechnologies, Inc., USGA, EPA.

For manicured native landscapes, there are several native plant garden templates available. Just be sure to check that the species indicated for planting are native to your region and make substitutions for those species that are not native. Native garden designs can be found, here:

<https://nativegardendesigns.wildones.org/>

<https://grownative.org/learn/native-landscape-plans/>

<https://www.dcnr.pa.gov/Conservation/WildPlants/LandscapingwithNativePlants/NativeGardenTemplates/Pages/default.aspx>

If you would prefer to hire a landscaper to design and/or install your Wild Back Yard, here is a list of landscapers advertising native plant design and/or ecological restoration:

<https://www.summitmetroparks.org/wp-content/uploads/WBY-Native-Landscaper-List.pdf>



STEP 10: Implementation

Following your timeline from Step 5 and using your map(s) from Steps 1-4 and design(s) from Step 9, implement your Wild Back Yard.

There is often a direct relationship between size of the Wild Back Yard and time needed for implementation. Some Wild Back Yards may require indefinite management, especially if heavily invaded. It can feel overwhelming, but please remember: any Wild Back Yard exists along a gradient, and every Wild Back Yard action is a step towards more biodiversity support.

The most important Wild Back Yards action is to get started, and the second most important is just to keep on moving.