Zoom: PSC Virtual Training 2026: AYNS-1595 - info@pollinator.org

Participant: Wordly [W] English (US)

[>> W] So this is the first of three live sessions this week covering habitat creation in different landscapes.

[W] So tonight is module five A.

[W] And we will be focusing on habitat creation for home gardens yards and balconies.

[W] On the agenda tonight I'll start things off with a short presentation on project timelines, gardening resources and funding.

[W] Then Sarah will provide you with info on prepping, planning, planting and maintaining your home garden.

[W] We will then have Jordan provide information on how you can get involved with your city or municipality to improve pollinator habitat.

[W] After that, we will finish with our Q&A session which will be led by Avery.

[W] Okay, so here is our info slide for tonight.

[W] So this week's recording will be posted on the course info page by Friday of this week.

[W] Please put questions in the Q&A box and we will answer them at the end of the session.

[W] You can scan the QR code on the slide, or use the link we sent to you in the chat or by email.

[W] If you'd like this webinar translated in your preferred language.

[W] As always, please engage with respect and kindness in the chats.

[W] And as mentioned before, we suggest that you write down in point form or 1 to 2 sentences.

[W] The key takeaways from each training.

[W] And doing this while you're attending live.

[W] And this will make it easier when filling out the step one form, which we'll send to you in April.

[W] And if you need help with anything or have any questions about the program, you can email us at Stewards at Pollinators.

[W] All right.

[W] So joining us tonight we have Sarah Wittenberg.

[W] Sarah is the bee friendly gardening manager at Pollinator Partnership.

[W] Sarah has a bachelor's of science in zoology from Auburn University and a master's of science in biology from the University of Arkansas.

[W] Her experience includes interning at the National Zoo in Costa Rica, directing the rehab program at the Southeastern Raptor Center, running a Hawk watch banding station in the Florida Keys, tracking gopher tortoises, conducting breeding bird surveys for the US Forest Service, and sandhill crane and sage grouse surveys for the US Fish and Wildlife Service.

[W] She has taught and coaches science at two public public secondary schools, and believe strongly in sharing her passion for the natural world with the next generation of conservationists.

[W] Welcome, Sarah, and we have Jordan here tonight, so Jordan Phelps is the program coordinator for Pollinator Partnership Canada.

[W] His passion for pollinators was sparked as an undergraduate at Western University in London, Ontario, Canada, where he studied animal cognition and learned about the incredible feats of learning and memory that bees and other small brained but mentally mighty pollinators are capable of.

[W] He went on to complete a master's of science at Western in Neuroscience, where he studied how exposure to common pesticides impacts the ability of bumblebees to learn about and gather food from flowers.

[W] Welcome, Jordan.

[W] Okay, so let's get these presentations started.

[W] So the goal for our training is to hopefully have you create habitat that looks something like this.

[W] You can see here we have a variety of flowers with different colors and shapes that attract many types of pollinators.

[W] And just by looking at this picture, you can sense that this habitat is alive with bugs and bees and all kinds of small wildlife.

[W] So this is actually what this space looked like before the garden was planted.

[W] So here are some of the questions we can ask ourselves when starting a new pollinator garden.

[W] And as Sarah will go into in a little bit, you might not necessarily need to start from scratch.

[W] Depending on your goals and the condition of your space.

[W] Sometimes, though, as you can see here, we already have plant life, but they may not be the plants that we want in our habitat.

[W] In this example, we have Japanese knotweed and goutweed, which are two highly invasive species where this picture was taken in Toronto.

[W] But with some time, patience and planning, beautiful habitat like this can be created that is supporting your local ecosystem.

[W] I think one of the important messages for tonight is when it comes to helping pollinators.

[W] No space is too small for habitat.

[W] Even smaller spaces with a few different potted plants can be beneficial.

[W] And if we think back to our previous session when Avery was talking about habitat connectivity, urban and suburban areas can really make a huge difference for pollinators.

[W] If more people embrace the importance of habitat, whether it's a larger space in your backyard or a small balcony garden, research.

[W] Research shows that creating a network of habitat in your neighborhood and forming these pollinator pathways can really help improve pollinator health and well-being.

[W] All right, so let's talk about project timelines.

[W] Up to this point in the course, we've been talking about the biology and ecology of different pollinator species.

[W] Today we want to take all that information and apply it to the habitat.

[W] We want to build things such as pollinator syndromes, life cycles of pollinators and the types of plants that we want to use to support pollinators.

[W] When thinking about your project timeline, it's important to keep in mind that certain plants require more effort from you than others.

[W] Ornamental plants might need more water and attention throughout the season, whereas locally native plants have evolved with their specific ecoregion and don't usually require as much attention once planted.

[W] You also want to plan whether you are going to start seeds or fully potted plants, usually with seeds, you can start in the fall or winter, which takes more time to see the plants reach full bloom, whereas potted plants you can start in the spring or summer and this takes less time overall.

[W] So depending on your goals, creating habitat can range from being relatively inexpensive to a bit more costly.

[W] So with this in mind, there are small scale grants, often on a state or municipal level, that can help you meet your habitat goals.

[W] And when it comes to costs, tools, plants, soil and signs are usually what make up most of the budget.

[W] So if you're looking for tools to use, there are great tool sharing programs or tool libraries that you can contact that allow you to borrow borrow tools.

[W] Another option is reaching out to your local garden club, where planting tools can be made accessible to community members.

[W] Plants, of course, make up a large component of the budget, and you can think about this in the various ways that you can access plants.

[W] The trick is to plan your garden by starting with your intended plants and working backwards.

[W] You should be thinking about questions such as how am I going to acquire my plants?

[W] What types of plants do I want to use, and in what form will I be buying my plants?

[W] You can start your garden using seeds, plugs, pots, trimmings and root remnants as well as rescues.

[W] So when you're starting your garden using seeds, we want to consider natural processes like stratification, which is how native plants have evolved to germinate in their landscape.

[W] So for example, we have cold, moist stratification, which occurs in areas that have winter.

[W] And this natural seasonal cycle of freezing and thawing allows these plans to develop.

[W] Then there are seeds adapted to warmer, drier climates that need harsh dry conditions to germinate.

[W] Planting your garden from seeds might require a bit more patience, especially since germination can take time and germination rates can sometimes be low.

[W] However, this can be a great and inexpensive way to start habitat.

[W] If you're looking to start your habitat from seed.

[W] Check in with your local native plant societies, nurseries or local businesses.

[W] Plugs are often a good way to start gardens, so many nurseries offer plugs or smaller seedlings that can be a cheaper alternative.

[W] And starting with potted plants is probably the easiest way you can start habitat, which you can get from nurseries, root remnants and trimmings are additional options, and there are companies that sell roots of native plants that can be an easy way to germinate plants in your own garden.

[W] And I'd just like to make a quick note on rescuing plants from sites that are being developed.

[W] If you are rescuing native plants from a site, you don't want to be transferring any of the soil over to your own site to prevent the transfer of invasive species that might live on the soil.

[W] So when rescuing plants, you want to remove as much of the soil as possible from the roots.

[W] So that way you're not transferring any unwanted larvae or eggs into your own habitat.

[W] And actually a popular activity that I've been reading about through this program is seed sharing, as well as native plant sales and giveaways.

[W] So this can be a fun way to meet like minded people in your community, and to find native plant species that might not be as readily available to buy elsewhere.

[W] And finally, when gardening at home, you really shouldn't need to use any chemicals when maintaining a small to medium sized garden.

[W] As I mentioned in our first module, pesticides can have direct lethal effects or sublethal effects on pollinators that can impact how they find resources and orient themselves.

[W] Certain herbicides and fungicides can also have negative impacts on pollinators, so if needed, it's recommended that you look into natural ways to keep the habitat you have.

[W] You've created at home healthy for visiting pollinators.

[W] An example we always like to share is including plants in your garden that are known to attract beneficial insects such as hoverflies, native wasps, lady beetles and dragonflies.

[W] These beneficial insects can help naturally control pest populations that might be clustering or feeding on your flowers and vegetables.

[W] And I'll include some resources for this on our course info page for you to check out.

[W] We also have a really great bonus webinar on pest management for your home garden that you'll gain access to once you complete your certification.

[W] Okay, so with that, I'll pass things over to Sarah, who will talk with the details of prepping, planning, and planting your your pollinator garden.

[>> W] Okay.

[W] Thank you.

[W] Got me.

[W] Thank you for that introduction, Anthony.

[W] And thank you all for being here tonight.

[W] My name is Sarah Whittenberg, and I don't think I need to introduce myself anymore.

[W] Anthony did a great job, so I will jump right in and we'll talk about building a pollinator garden tonight.

[W] So by now, you already know the five big culprits that are threatening our pollinators.

[W] And the interactions between these pressures amplifies these.

[W] But there is one threat that is easy for everyone to do something about, and that is habitat loss.

[W] So we're going to spend our time together today talking about how we can create habitat.

[W] There are three primary habitat strategies that I will focus on.

[W] Keep the habitat that you have.

[W] Create the habitat that you don't, and reduce pesticide use.

[W] You may be surprised at what you already have in your yard or garden that is useful to pollinators.

[W] You may not have to do anything and be able to help.

[W] You can create quality nesting habitat and overwintering habitat via the use of natural structures, or by the addition of artificial structures.

[W] Ideally, you would make use of existing habitat by retaining what is already there, rather than cleaning dead material from your garden.

[W] So keep some of the elements that are listed here at the top of this slide, which make great nesting and overwintering refugia for pollinators.

[W] And it can be simple.

[W] Things like don't remove dead or downed wood, wood boring beetles create exit holes that are perfect for wood nesting bees.

[W] Additionally, some species, such as carpenter bees, may drill their own tunnels directly into softer wood and perhaps luring them away from your house.

[W] Brush and rock piles, as well as native bunch grasses and sedges, create shelter interfaces with bare ground that provide ground nesting bee habitat.

[W] They also provide cover for small mammals whose abandoned burrows become perfect bumblebee nests.

[W] Rock pile crevices can provide a suitable location for cavity nests.

[W] Shrubs such as sumac and elderberry, and brambles like raspberries, in addition to some forbs that have hollow or pithy stems, make perfect stem nesting habitat.

[W] So don't clear away your dead wildflowers.

[W] Instead, prune the stems to varying heights between about 8 to 24in along with your shrubs to create nesting habitat.

[W] And furthermore, you can take those stems that you cut and you can bundle them together or pile them in a protected area to create additional habitat.

[W] Intentionally leaving well drained bare soil areas in sunny locations also allows nesting sites for bees.

[W] For those ground nesting bees.

[W] So also come up with a management plan that limits mowing of unused margins.

[W] Places like ditches, roadsides, grassy areas and only mow those once a year or less, or maybe only mow 20% of an area.

[W] Or consider mowing a different section each year.

[W] Even in a very small yard, you can leave one patch unmowed as a refuge.

[W] And finally limit tilling.

[W] Tilling destroys underground bee nests like the one pictured here at the top and of our native bees.

[W] About 70% of them nest underground.

[W] Okay, so now that you've preserved the resources that you already have, it's time for the fun part to create new habitat.

[W] And when you create new habitat, the components to keep in mind are floral resources, nesting habitat, and protection from pesticides.

[W] Good pollinator habitat effectively mitigates lots of other environmental concerns as well.

[W] It aids in stormwater management, deep rooted perennial natives have extensive root systems which slow spread, soak, and store stormwater, keeping it on site rather than running off into our storm drains.

[W] It increases infiltration to recharge groundwater sources and filters out contaminants and sediment, controlling erosion.

[W] Rain gardens, bioswales, and detention pond retrofits can also be the foundation for a good pollinator garden.

[W] As pictured on the right.

[W] Native plants are the gold standard.

[W] Pollinator gardens don't have to be only native plants, but the goal is to mimic the native ecosystem as much as possible.

[W] A good rule of thumb is to strive for about 70% of your space to consist of native plants, but the best rule of thumb is to plant more native plants this year than you had last year.

[W] Pollinators have evolved alongside the plants they depend on, so the more of those native plants you include, the more pollinators you will support.

[W] Many native plants after the first year may only need supplemental watering during drought, or if they're showing signs of heat stress.

[W] North American perennial prairie plants are characterized by their deep and extensive root systems that make them more tolerant to drought and other adverse conditions compared to exotic turfgrass species like you can see in the upper left of this diagram, such as Bermuda or bluegrass, as well as many ornamentals.

[W] And in addition to needing minimal water, plants adapted to your ecoregion, don't need special care, as they're resistant to most insects and diseases, and they attract those beneficial insects that Anthony was just talking about.

[W] They likely also sequester more carbon on site.

[W] Some roots can penetrate up to 16ft, as this exhibit from the US Botanic Garden wonderfully demonstrates.

[W] It also captures the disparity between the above ground and below ground biomass of many native prairie species.

[W] Not all built landscapes look the same.

[W] Each is a work of art, and there's no right or wrong, which gives each gardener creative license and it makes it fun.

[W] The garden on the left is in Emmaus, Pennsylvania, and you'll see Canyon Springs Garden Outreach on the right.

[W] Some like this garden in Stamford, Connecticut, are a little tidier and ordered, and others are more naturalized, like this meadow in Waterloo, Ontario.

[W] The beauty of it is because they're all based on plants native to where they are.

[W] They are each different and wonderfully adapted to their place, such as these more xeric plants in Albuquerque, New Mexico.

[W] Here is a pocket prairie and Ringo, new Jersey.

[W] And here's a garden mixing natives and non-natives to create a beautiful color palette palette.

[W] The sky is the limit, so have fun with it.

[W] Okay, so we're going to get into the details.

[W] The how to you need a plan.

[W] So step one is to prepare your site.

[W] And site prep is so very important.

[W] You don't want to skimp at this stage.

[W] It will pay off in dividends later.

[W] First you need to remove the sod.

[W] Sod makes a thick mat so that no seeds that you sow are going to reach the soil.

[W] And it's important to have bare dirt for seed to soil contact in order to have successful germination.

[W] There are many ways to eliminate existing vegetation and prepare the soil for a garden.

[W] The most common methods include sheet mulching, lasagna, gardening, solarization, sod removal, or a combination of those.

[W] Choose the method that best suits your style of gardening, the size of your space, and the amount of labor that will be involved often dictate your method.

[W] Some, like Solarization and sod removal, are more ideal for small areas, while a steady supply of free cardboard and wood chips can make sheet mulching a good candidate for larger areas, some of these methods can be used in tandem.

[W] There is no one right or wrong way, you just have to experiment and find the method that works for you.

[W] I also want to stress here that there's no perfect method.

[W] Many of these methods have a negative effect associated with them.

[W] Chemicals in glues and cardboard, as well as the fact that it prevents gas exchange with the soil beneath microplastics from the large plastic sheets required from solarization.

[W] And we acknowledge this, but with an end goal of habitat that is going to benefit loads of pollinators and other wildlife, we believe that the means justifies the ends.

[W] Many of these are just single application events that won't need to be repeated once your garden is established, and we are building a garden in an effort to return the landscape to a more natural form, we are simply an agent of nature, but we cannot replace these truly natural processes.

[W] So we're going to run through an overview of each method briefly.

[W] We'll start with sheet mulching, which is mostly about smothering existing vegetation.

[W] You are laying down sheets of material over existing grass and vegetation to block out sunlight and smother the plants.

[W] So first you're going to lay a base, cardboard or paper.

[W] If you use cardboard, remove all the tape and staples first and just use plain unwaxed cardboard.

[W] You can get large rolls of butcher paper, use brown packing paper or even newspaper.

[W] But if you do paper, you're going to need several layers to make a thicker barrier.

[W] Depending on when you prep your garden and how long you have before you're ready to plant, you can dig right through that base layer and plant into the existing soil, or add a layer of soil and compost on top of the base layer, and plant or sow seeds into that.

[W] If you plan to sow seeds, I recommend using the second method so that the seeds can make good contact with the soil layer.

[W] If you can prepare the bed in advance, this is preferable.

[W] Ideally, build the bed in the fall, which will give the base layer time to smother any underlying vegetation.

[W] Your thicker layers of mulch to settle and break down a little.

[W] Your cardboard time to decompose a bit, which if you're using the method of planting right through the cardboard, it'll make it much easier to dig through with a shovel.

[W] You can sow seeds right away in winter.

[W] In fact, many native perennials benefit from cold stratification, or you will be ready to plant plugs in the spring.

[W] It can take about three years for the cardboard to break down completely.

[W] And then finally on top you're going to want to add mulch.

[W] Good mulch options include thick layer of straw, 4 to 6in of woodchips, or even 6 to 12in of fallen leaves.

[W] And then you can just pull back the mulch where you plant and leave kind of a gap between the mulch and the plant stem, so that they don't interfere with the moisture around the stem.

[W] It could cause them to rot.

[W] So I would check with your local arbor, local arborists and tree trimmers, and there's a service called Chip drop where you can get free wood chips from.

[W] So once you have selected your site, lay down your cardboard.

[W] Wet the cardboard, cover it with your planting medium or mulch, and you can plant directly or wait for a season to allow the cardboard to decompose a bit.

[W] Okay, another one.

[W] Another method is lasagna gardening, so named because of the layers that create the garden.

[W] And just like lasagna, there is no one recipe.

[W] You can add whatever you wish to form your layers.

[W] You can see there's a veggie lasagna on the left.

[W] There's a lasagna on the right.

[W] You probably have a favorite lasagna recipe that you use, but the thing that they have in common is that they are all layered with noodles.

[W] So these are just kind of they all have a general guideline that you will follow if you use this method.

[W] This is a great way to build raised beds and container beds.

[W] In essence, you are choosing the location where you want your garden and you are building a compost pile on site.

[W] So a good rule of thumb is to layer browns, carbons and greens nitrogen.

[W] Just like composting.

[W] And then you allow decomposition to take place.

[W] So browns include dry dried leaves, pine needles, dried grass, straw, cardboard and paper.

[W] Like we've already talked about wood chips, limbs, sawdust, you know, all of the things that you're kind of rooting out of your yard, your your cut material from last year's garden to create that layer.

[W] And then you can layer it in with greens like grass clippings and weeds that you pull.

[W] Make sure that they haven't gone to seed, however, because you don't want to contaminate your garden or even food waste.

[W] So simply start piling them onto your site and layers and keep adding over time until you get a good base or you're ready to plant and aim for more layers or ingredients rather than less.

[W] You don't want to overload any one thing, or you won't get the desired result.

[W] So if you just fill a bed with nothing but pine needles, you're not going to end up with beautiful soil in the end.

[W] So this site built this pollinator garden via the lasagna method, and you can see its progression through time to this.

[W] If you struggle to find enough materials, get creative.

[W] Ask your neighbors if you can have their yard waste, their grass clippings, their fall leaves.

[W] Most of them will be happy to share with you, especially if you're willing to come in and remove them for them.

[W] But the best time to start this is fall or even earlier, so it does have time to break down, and then you'll be ready for spring planting.

[W] Okay.

[W] Method number three.

[W] We'll discuss the solarization, which uses either black plastic, such as a silage tarp, to prevent light from reaching the surface of the soil, which kills living plants and prevents further germination, or clear plastic like polyethylene to superheat the soil and kill all plants and seeds in the seed bed.

[W] And I will note that these are pre-planting soil treatments, unlike the ones that we just discussed.

[W] So once the soil is ready, the plastic is removed from the site.

[W] Solarization works best where temperatures are high and the site receives a lot of sun.

[W] It won't work in shady sites.

[W] So again, a lot of these methods are site dependent or effort dependent.

[W] Solarization was first described in 1976 by Katan et al.

[W] And in the photo on the left, the plastic was laid down and sod strips were placed around the edges and anchored with sod staples, so you'll want something to hold down the edges tightly, because you're going to be leaving this on the ground for quite a long time, and you don't want your hard work all and done on a windy day, so you're just going to mow the existing vegetation as low as possible and then lay down the plastic cover.

[W] General best practices vary depending on whether you need a quick prep method, or if you have more time to prepare your site.

[W] So for quick prep, laying clear plastic down in the hottest summer months is the way to go.

[W] There was a study performed by the Guelph Turfgrass Institute that looked at the effects of solarization with treatments of two, four and six weeks using both black and clear plastic, and they found that the best option.

[W] Again, this is for the quick prep, was a six week treatment with clear plastic.

[W] It controlled the most species of vegetation in the plot.

[W] However, none of those treatments were successful in controlling dandelions, so the tops were killed.

[W] But as dandelions are perennial with a deep taproot, the root survived. In.

[W] Roughly two months later, they had grown back.

[W] So if you have more time, studies have shown that for the best long term results, black plastic over two growing seasons is the way to go.

[W] Because in addition to dandelions, grasses that have underground rhizomes are really tough.

[W] And the only method that works is that long term solarization for some of those species.

[W] Okay.

[W] So we're going to talk about sod removal.

[W] And while sod removal is a very effective way to prepare a garden, it is time consuming and strenuous.

[W] So it's not for everybody.

[W] It's only recommended in small areas.

[W] You need a good shovel with a sharp edge.

[W] Better to do after a rain when the ground is soft and many sods can be removed in large squares or even rolled up in strips, and then you can actually transplant it elsewhere.

[W] If you have a bare patch where you want lawn, you can flip it upside down and allow it to desiccate, making sure that all the grass is dry and you can actually use that as a mulch.

[W] But just make sure the grass is dead first, or it will resprout and undo all of your hard work.

[W] So you use a shovel to slice through and remove the sod, which will give you a nice clean canvas upon which to plant.

[W] Okay, finally, tilling and tilling the soil is overturned to a depth of 6 to 10in.

[W] Tilling is frequently used in tandem with other methods.

[W] Once tilled and raked, smooth watering the area will encourage the growth of seeds that were brought to the surface, which can then be smothered or solarized to sterilize the garden bed and prep for planting.

[W] However, tilling has its downsides, and no till gardening is becoming more popular for many reasons.

[W] Tilling releases carbon and nitrogen into the atmosphere, and this neat graphic from carbon streaming.

[W] Com depicts different biomes and ecosystems, and the amount of underground carbon storage capacity each has.

[W] But the takeaway from this is how much carbon is stored in our soil, as opposed to other places.

[W] So soil is a tremendous, important carbon sink.

[W] And when possible, we want to disturb it or we want to disturb it as little as possible.

[W] Okay.

[W] If you plan to utilize raised beds or containers, then have those built, prepped, filled with soil and ready and make sure that you have access to water nearby.

[W] Try not to compact the soil in your workspace.

[W] Minimize walking in the area.

[W] Consider the use of stepping stones and walking paths.

[W] Not only are they useful for planting day, but they are an attractive component of your garden and create borders and add edging to make your space look intentional.

[W] We call these cues to care.

[W] Start with a plan of what you want your garden to look like.

[W] You can get creative or find a pre-designed plan, such as this one taken from our friends at Wild Ones.

[W] Start out with a few plants in a small area and add more over time.

[W] As you build your garden and consider planting in clumps so that pollinators can find and visit many flowers in one location.

[W] This provides a worthwhile food stop.

[W] So just some more considerations for your layout.

[W] You're going to want to think when you're planting a lot of these plants.

[W] They're really tiny and they all look the same.

[W] But you want to think about long term.

[W] So make sure that you're planting tall plants behind and shorter plants up front.

[W] You want to put things like shrubs in the back of the garden.

[W] You may include small trees.

[W] Just consider their shade footprint and how it might alter the sun availability to the plants below as that tree grows.

[W] Because little trees are going to get big and you probably want to keep large trees and like designate those for other areas of your yard.

[W] There are pollinator plants that will grow in the shade, but most of them are going to be sun loving plants, so you don't want to change the entire shade footprint in a couple of years and have things that were thriving now do poorly.

[W] So consider microhabitats in the shade that may be created by buildings as well, and existing vegetation, even like those taller pollinator plants.

[W] Plant ground covers in between your plants, such as violets or native strawberries.

[W] These act as a great living mulch and plant densely.

[W] It looks more natural and it reduces the need for mulch and minimizes weeds, and just allow the ground cover to fill in the spaces.

[W] Okay, so make sure that you have your supplies ready before you start to plant.

[W] It'll go much more smoothly.

[W] Have a planting medium such as garden soil and mulch.

[W] Ladies out on tarps near your workspace.

[W] Although you should plant right into the existing soil, I like to have some extra on hand and then make sure that you have any tools that you're going to need.

[W] Shovels, spades, gloves.

[W] Compost and mulch both improve soil health, but they serve different purposes.

[W] Compost is decomposed organic matter.

[W] It's rich in nutrients, and it's used as a soil amendment to improve soil structure, retain moisture, and provide essential nutrients to plants.

[W] Mulch is a layer of organic material placed on top of the soil to retain moisture, regulate temperature, suppress weeds, and prevent erosion.

[W] Mulch breaks down over time and adds some nutrients, but its primary function is protection rather than enrichment.

[W] So in short, compost feeds the soil while mulch protects it.

[W] And if you want to know more about composting, I recommend checking out our friends at Let's Go.

[W] Compost composting is a great way to divert your food waste from landfills and keep nutrients on site, and it's really perfect if you have a vegetable garden or an area where you might need to amend your soil.

[W] So here's the fun part.

[W] Do your research to select the plants appropriate for your region, and locate your source.

[W] So I know by now you're all aware of our wonderful resources to help you make your plant selections, such as our zip code based Ecoregional guides and our garden recipe cards for instant gardens for your region.

[W] But once you plant it, you have to purchase them and get them to your site.

[W] And so you can check out your local native plant sales.

[W] Things like check good places to check out your state's native plant society.

[W] Wild ones, master naturalists, or we have some online native plant nurseries that we work with.

[W] My home park or Stover are also great resources to find plants, but keep in mind timing when you're when you're purchasing your plants, the best time to plant seeds is in winter, so they will be cold stratified in Germany in the spring and spring and fall are good times to plant plugs, but summer is really just kind of hard on everything.

[W] Of course, you can always try to grow your own plants from seed.

[W] You don't have a greenhouse?

[W] No problem.

[W] You can create your own mini greenhouses in which to winter, sow seed via the milk jug method.

[W] And if you just Google this, there are tons of resources and they don't all have to use milk jugs.

[W] There are lots of people that do this different ways and are really crazy successful, and it's a great way to multiply your seeds into lots of free plants.

[W] Okay, so think about your arrangement.

[W] Next, lay out your plants where you want them.

[W] Actually sit the pots in the spots.

[W] Rearrange them as needed.

[W] Think about all of those considerations that we talked about with height and spacing and get them, you know, kind of set where you want them before you start digging your holes.

[W] Just dig holes the size of the pot.

[W] If the plants are root bound in their pots, then you want to kind of gently shake or separate out those roots.

[W] Tease them apart.

[W] Sit that plant gently down in the hole and then backfill it with the soil that you had removed.

[W] Just make sure that there aren't any air pockets you don't want to space between the plant and the soil beneath, and gently press down around the plant just to kind of tap that soil down and add more if needed.

[W] And then immediately after planting, give those plants a really good soak and keep them well watered during establishment, which is really the first year.

[W] And I would recommend that you water less frequently and deeper as opposed to more shallowly and more often.

[W] So like once or once a week is really good, maybe twice a week if it's especially hot or dry like in the summer.

[W] Because remember, we're giving them this support through their first year and then add mulch to retain moisture and suppress weeds.

[W] We already talked about some of those things that make good, good mulch, but something to consider is maybe not using a really thick layer of wood chips everywhere, but leaving some bare ground, because remember, we have those ground nesting bees and they can't access the ground to nest if it's all covered in thick wood mulch.

[W] But keep in mind that bare dirt won't stay bare for long, so placing plants in those denser arrangements and using living ground covers helps to reduce the sprouting of unwanted weeds.

[W] And remember, weed.

[W] A weed is simply a plant that we don't want in a particular location.

[W] You might have to do some weeding to maintain the presence of the desired plants, and eliminate those that you don't want, and I'll point out that your garden is going to be constantly evolving.

[W] Some of the things that you plant might just be short lived biennials.

[W] I learned that with this cardinal flower lobelia, it bloomed in my garden once and then it never came back again.

[W] And then I had a hole, so I had to go find something else to put there.

[W] But that's kind of the fun of it.

[W] And some plants will also self-seed, and they can kind of move around within your garden over time.

[W] So it's going to be constantly changing.

[W] Okay.

[W] Some more, some more discussions along the maintenance vein is we want to promote the use of IPM in your garden.

[W] And IPM stands for Integrated Pest Management, which is a science based process to solve pest problems while minimizing risk to people and the environment.

[W] So in order to implement IPM strategies in your garden, you want to really take the time to understand your system and observe the interactions that are taking place.

[W] We talked about beneficial insects.

[W] Having the presence of those in your garden will keep pests in check.

[W] How about just redefining quote pests?

[W] Are you willing to tolerate the presence of some insects or weeds in your garden?

[W] Are they really doing any harm?

[W] Many people strive for a lawn that looks like the photo on the top, which is just a monoculture of non-native turfgrass.

[W] But if you look at the picture in the bottom that has dandelions and clover, they add a splash of color while also feeding early emerging bees when there's little else for them to eat.

[W] So are you willing to tolerate something that looks more like the bottom than the top for ecosystem purposes?

[W] And finally, continual monitoring is important in an IPM approach.

[W] Okay, so seasonal maintenance.

[W] Don't think of fall as a time to quote clean up, but rather a time to prepare for rest and recharging.

[W] Plants are going dormant, pollinators are hibernating.

[W] And remember some of these catchy phrases when you when you celebrate these practices, you're putting nutrients back into the soil and you're providing habitat for overwintering insects.

[W] So just retrain yourself that it's okay to have an untidy garden structure and texture can provide interest and be beautiful.

[W] Not to mention that it is critical for pollinators to have a place to overwinter and breed.

[W] If we're only providing beautiful plants for them to feed off of, but we're not supporting them through the rest of their life cycle, then we're only helping with part of the problem.

[W] So we already talked about some of these, but cut spent flowers back so that the stems are varying heights between 8 to 24in, as the photo in the upper left shows, dead and decaying wood is valuable.

[W] So leave those fallen logs and rotting snags and limb piles and leave those leaves.

[W] Because many caterpillars find refuge in leaves on the ground during the winter.

[W] One of those catchy phrases stay, save the stems.

[W] This graphic on the right from Heather Holm, is a good visual depiction of how that actually works across seasons, showing how in spring those flower stems are cut, which opens up the stems for nesting bees.

[W] This is also an example of chop and drop, because once you cut those flower heads, you can just drop them right there on site and allow them to decompose, which adds nutrients back into the soil.

[W] And then also leaving those cut stems on site allows any larvae that may be inside to complete their life cycle.

[W] So you can just bundle them in a marginal part of the yard and leave them there, and they'll emerge when they're ready.

[W] And then the figure on the left shows some plants that have suitable hollow or pithy stems that create great stem nesting bee habitat.

[W] Okay, so why do we do this?

[W] Don't forget to take photos and document the pollinators that show up to enjoy your hard work.

[W] Don't forget to enjoy yourself.

[W] Okay, oops.

[W] I hung up for a second.

[W] Signs explaining what you are doing are so important to raise awareness and encourage neighbors to get involved.

[W] If you go to our website at pollinator, we have two free printable garden signs and then those who join our bee friendly gardening program and register their garden are eligible to purchase the sign on the right.

[W] I'm going to take you on a quick photographic journey of my first pollinator garden.

[W] Much of my experience and what I've learned has come from experimenting in my own yard.

[W] I lived at this site for eight years, and then in 2023, we moved.

[W] And so I'm getting to start all over again.

[W] And this reminds me that I need to take some more pictures of my new gardens.

[W] But these are the before pictures.

[W] These show some of my early plantings and early on you can see I had small plants that were widely spaced, so I used a lot of mulch and learned that I should pack them in much more densely.

[W] These are photos of my garden when it was about 3 to 4 years old.

[W] But I definitely made mistakes and I learned a lot through the process and I would do things differently, such as my mom gave me one sprout of a ground cover called Creeping Jenny, which I didn't know anything about at the time on the left, and soon it took over and I continued battling it for the rest of my time in this house. So.

[W] But I slowly replaced it over time with Milkweed and Bidens aristus, which is a tickseed from seeds that I collected on a local prairie.

[W] Other things I learned.

[W] It's not advice to fertilize many native plants because it will cause them to grow too tall.

[W] I don't amend my soil around I or I didn't around these plants, and still I struggled with them, growing really tall and leggy and falling over.

[W] So these are phlox and gray headed coneflower.

[W] So in retrospect, I would have moved them much farther back because they always flopped over the path and then subsequently did such a great job of attracting bees that when they were in full bloom, my kids would not walk into the backyard because they were always covered with buzzing pollinators.

[W] And then we had fun over time, adding new host plants and then seeing what caterpillars came to them.

[W] And inevitably, every time we added a new host plant, the caterpillars, sure enough, we would find on there pretty quickly after.

[W] So we had Dutchman's pipevine for pipevine swallowtail passion flower for Gulf fritillary milkweeds, which are the host to monarchs, but also things like milkweed, tussock moths and some other caterpillars and insects.

[W] And I just want to remind you, at this point in the talk, that host plants are meant to be eaten.

[W] That's why we plant them.

[W] So a little bit of herbivory on the foliage is a good thing.

[W] In our small yard, we had room for food for us too, so we had blackberries and mulberry trees.

[W] We grew herbs.

[W] We had a vegetable garden on the left.

[W] And then sometimes when I had less time to devote to maintaining it, I would just turn it over to the pollinators and the black swallowtails would love the dill, and the rabbits and birds got the strawberries.

[W] So.

[W] And then at any point I could turn it back into food for us.

[W] But one way to incorporate pollinator habitat into food gardening is via companion planting.

[W] So planting more habitat for pollinators will attract them to your food garden, increasing your pollination and therefore your yield for food.

[W] So this is a really good companion planting chart for Missouri's grow Native, which is an amazing organization with a lot of really good resources.

[W] This is just part of that spreadsheet.

[W] It covers a variety of food plants and then what native pollinators pollinate those plants and then what companion plants, native companion plants you can get to lure those pollinators in.

[W] Okay, so the practices that we discussed today are scalable from the smallest container garden to a backyard garden to demonstration and community gardens like the USDA People's Garden, pictured here in Washington, D.C., to large scale restoration sites like This Prairie in Arkansas.

[W] And adding habitat will have a positive influence no matter how much size you have influence over anybody can create habitat.

[W] Anthony alluded to this at the very beginning.

[W] No matter how small your space.

[W] So even a window box or a couple of potted plants provides valuable food resources.

[W] If you think about a migrating butterfly like a monarch that has to hopscotch its way across the landscape, then your containerized pollinator plant might be just what it needed to sustain it to the next patch of food resources that it can find.

[W] So these photos are from our co-director of Agricultural programs, who lives in Ohio.

[W] She lives on a second floor apartment, and this is her balcony.

[W] And she has 17 species of native wildflowers that bloom from spring all the way to fall.

[W] And she even gets hummingbirds that visit her up on her second floor.

[W] So your space has a lot to offer, and it can make a big impact, and you can increase your impact by recruiting your neighbor.

[W] It's hard for pollinators to find floral and host plant resources if they are few and far between.

[W] Some native solitary bees have such small home ranges that they may complete their entire life cycle in only your backyard, or maybe something a bit larger, like a bumblebee.

[W] Maybe you and a couple of your neighbor's yards could be their whole world.

[W] So think about what kind of home you're creating for them.

[W] We talked a bit about wildlife and habitat corridors, building that connectivity across the landscape is so important, and neighborhoods can play a really important role in that.

[W] This is why it's important to extend your efforts beyond your own yard, if possible, by educating others, joining your HOA, getting your neighbors involved.

[W] So let's work to create a network for that migrating butterfly so that she can make it to her destination.

[W] I'm going to take a few minutes to talk to you about the program that I manage, bee friendly gardening, bee friendly gardening is a program that supports and encourages members to protect, preserve, and promote pollinator health.

[W] You can scan this QR code and go to our page if you are interested to find out more.

[W] But focus on the colorful graphic in the middle.

[W] BFG is not just for backyard gardens, it is for every landscape.

[W] So think about the places over which you have influence that you can make a difference.

[W] And once you do, consider registering that habitat as a bee friendly garden.

[W] This is the public facing website to give you a feel for what you will see if you navigate to our page.

[W] Bee friendly Gardening org and upon joining, you'll receive a digital welcome packet including a personal planting guide and your region's garden recipe card.

[W] You will receive a digital badge and a personalized certificate, and we have a series of badges that you can earn by taking actions to assist pollinators.

[W] We have quite a few benefits that come with your membership, including a members only website that serves as the hub for all of your benefits.

[W] You'll receive a monthly newsletter.

[W] We host a quarterly member webinar.

[W] You can access BFG merch such as this Cool Hat and other things like shirts and a garden flag and a notebook and you will be displayed on our maps and receive an invitation to join our very active Facebook page.

[W] As well as having access to a variety of resources such as this one, to help you create a pollinator garden.

[W] If you don't already have one.

[W] We will encourage you to build and register your bee friendly garden, at which time you will be encouraged to join the BFG naturalist project to document the pollinators that your garden is attracting and eligible to purchase the official BFG sign with the registered BFG.

[W] Upon request, we can provide a letter to your municipality or HOA.

[W] If you are running up against conflict with your native habitat and need support.

[W] And I also want to emphasize here that creating a bee friendly garden satisfies the habitat creation action to complete your pollinator steward certification.

[W] So if that is something that you want to pursue, definitely reach out.

[W] If I can help you.

[W] For further inspiration, here are some of our registered bee friendly gardens for your enjoyment.

[W] This is our one and only so far.

[W] Mexican BFG and Jose frequently shares visitors to his BFG on our Facebook page, so it's fun to see different pollinators than many of us are used to.

[W] At BFG, we stress that everyone can do something.

[W] You don't have to wait.

[W] Bee this house on this street.

[W] Add planters with native flowering plants.

[W] Work with your neighbors to create a community garden like this one in Michigan.

[W] Volunteer with an organization to add habitat like this at Cape May Science Center's Pollinator garden.

[W] It.

[W] Just do something.

[W] There is so much marginal land in our daily environment.

[W] Imagine if all of these unutilized spaces were turned into pollinator habitat, parking lot medians, landscaping outside of businesses, Boulevard strips the grounds of your local public library.

[W] There are so many possibilities, and often they just need someone to spearhead it by installing habitat in your yard and beyond.

[W] We are creating that connectivity across the landscape that wildlife so desperately needs.

[W] Also, I just want to mention, although these are local to me here, I live in Arkansas, there are good chances that you can tap into local resources to help you meet your goals, no matter where you live.

[W] So although I am less familiar with programs outside of the US, there are federal resources such as the NRC's.

[W] There are state resources here in Arkansas.

[W] Our state agency offers technical assistance and funding local resources such as watershed partnerships and bird societies, native plant societies, master naturalist organizations.

[W] Perhaps there's a Wild Ones chapter near you.

[W] I would definitely spend some time locating resources available to help you wherever you live.

[W] Sometimes people don't realize what a wealth of resources there really are out there.

[W] I'll just like as a side note, we're working right now with quail forever, a biologist from Quail Forever and a biologist from the Arkansas Game and Fish Commission to convert two acres of our own property into wildlife or pollinator habitat.

[W] And they have been invaluable in free technical assistance and even some free seed to do that.

[W] And it just took me kind of being persistent in finding the right person.

[W] So definitely check around and don't give up.

[W] So I'm going to end by highlighting that conserving native bees and other pollinators by creating habitat does a lot more than just support bees.

[W] These habitats have many other values, as you can see outlined on one of our previous posters, pollinator habitat provides water filtration, carbon sequestration, support for biodiversity, mental health benefits, and many other side benefits that are important to people and the planet.

[W] We know that creating habitat is good for pollinators, but it's also good for communities, pollinators celebrating pollinators, creating habitat, and engaging with

people we may not have without a common goal of pollinator conservation are all wonderful ways to connect with others in nature.

[W] At a community level, leading to global benefits.

[W] And with that, I thank you so much for your time today.

[>> W] Thank you so much, Sarah.

[W] Okay, now we'll pass things over to Jordan.

[>> W] Perfect.

[W] Let's try to share my screen here.

[W] There we go.

[W] How's that?

[W] Good.

[>> W] Thanks, Jordan.

[>> W] Perfect.

[W] Hello, my name is Jordan Phelps.

[W] As Anthony mentioned, I'm the Obesity Canada coordinator at Pollinator Partnership Canada.

[W] And today I'm going to be talking about going beyond the pollinator garden.

[W] So what can we do to expand our impact not only in our own gardens but also in our communities more broadly?

[W] So creating a pollinator garden, if you've got the space and the means to do it, is really one of the best things we can all do to support pollinators.

[W] And Sarah did an incredible job talking about how we can all go about this.

[W] But let's say you've already created an incredible pollinator garden in your space.

[W] You've followed everything Sarah just talked about.

[W] It's filled with a diverse range of native plants that bloom across the different growing seasons.

[W] You've got lots of different host plants that support specific pollinator plant interactions.

[W] You've considered nesting space for pollinators.

[W] Now what?

[W] Of course, continuing to expand the garden.

[W] If you've got lots of space, is awesome, but there is a lot more that you can do.

[W] And I'm going to touch on this in the last ten minutes or so here today.

[W] So a really fun thing that you can do is track all of the different pollinator species that are coming to visit your garden, and then you can upload those observations using programs like iNaturalist and Bumblebee Watch.

[W] This helps pollinator researchers to better understand the abundance and diversity of pollinators in your area.

[W] And this is really important for being able to track how pollinator populations are doing.

[W] And personally, I find it's a really great way to just feel connected to nature in a way that tends to be accessible for a lot of people.

[W] Similar to Sarah, I moved a couple years back.

[W] I had a really established habitat area, and now I'm creating a new one.

[W] But before I would go out with my morning coffee pretty much every day when the plants were blooming, just take some time to scan all the plants, see which of the pollinator neighbors are out today.

[W] It's just really an enjoyable way to start your day.

[W] You can make records on which pollinators are visiting which plants.

[W] It's really interesting to see what all those relationships are.

[W] You can kind of track year after year and compare your species lists each year.

[W] And as you introduce new plants, see if your species list grows.

[W] There's lots of ways to have fun with this.

[W] Lots of opportunities to contribute to to these different projects, but a really great way to start.

[W] If you're not already doing this, is to participate in our Pollinator Week BioBlitz.

[W] So we do this every year during Pollinator Week, which is the third week of June.

[W] If you go to the Pollinator Partnership website, there'll be a toolkit that you can download.

[W] So this will teach you how to get started.

[W] And we've got an iNaturalist page where you'll be able to submit your observations.

[W] Another thing that you can do to increase impact in your garden is to collect seed from the plants that you have.

[W] So there's lots of information out there about how to collect seed from different species.

[W] Typically this is in late summer to fall when plants are turning brown and drying out.

[W] And then once you've collected that seed, you can share it in all kinds of ways.

[W] You can share it through your personal network, through friends and family.

[W] There might be seed libraries local to you.

[W] You can donate it to.

[W] There's often seed swap events.

[W] I know here in Canada we've got seed Saturdays and Sundays that are really popular.

[W] And of course you can also grow out that seed yourself to expand your own garden or share with other people in your community.

[W] And especially if you're sharing with people that are just getting started out with their pollinator garden, this can be really the way to go.

[W] It's a lot easier for those people to just take the plant and plant it, than grow from seed.

[W] And if you'd really like to increase your impact through collecting and growing native plant seed, there's there's different programs that you can get involved in where you can actually receive some training as a seed collection volunteer.

[W] So then you can go out even beyond your own garden to collect seed and have that seed go toward pollinator conservation.

[W] So one one program that I'll point out is Project Wingspan.

[W] This is a really good one to get involved in.

[W] Depending on where you live currently.

[W] I know we've got an active project where I'm based in Ontario, but I believe there's several ongoing in the US, so I recommend you check out the website's Pollinator Partnership and Pollinator Partnership Canada.

[W] Depending on where you live, to see if one of these programs is active that you could get involved.

[>> W] In.

[>> W] Okay, so you've got a great pollinator garden.

[W] You're observing which pollinators are present in your garden.

[W] Maybe you're even collecting seed in your garden to to share with your community.

[W] And growing out plants.

[W] Now, where do you go?

[W] So this is a really great time to see if there are ways to get involved more broadly in your community.

[W] Many cities and towns have pollinator working groups or host events, such as kind of planting events and habitat maintenance events, and even educational events.

[W] So you can see in this picture here.

[W] This is from Pollinator Working Group in Waterloo, Ontario.

[W] And you can see they're an education event.

[W] They're tabling.

[W] They've got all kinds of resources to hand out to the community.

[W] And I know this group in particular does quite a bit of planting and habitat maintenance as well.

[W] So this is a great route trying to see how you can get involved in your city or town, but let's say your city or town actually does not have that many opportunities to get involved.

[W] Let's say they've got a lot of room for growth in their support for pollinators.

[W] You now have an excellent opportunity to advocate.

[W] You can advocate to council, to municipal staff and bring really specific actions that you want your city or town to take to support pollinators.

[W] So I'm going to talk more about this in tomorrow's session.

[W] If you're going to be at tomorrow's session, it'll be more kind of focused on municipal land management.

[W] But for now, I wanted to go over a few of these examples, because these are all things that if you're a resident of a city or town that you can advocate for, so first, native plant gardening by your city or town, if they're not already doing this.

[W] And ideally mapping the habitat that they're creating.

[W] So this way they know where habitat exists.

[W] And as they create more habitat over the years, they can strategically fill in gaps and contribute to habitat connectivity.

[W] Another good one is advocating for native plant propagation by your municipality.

[W] In municipalities with greenhouses, often the majority of the space gets devoted to growing annuals, and there's often an opportunity to use some of the space for native perennials, which of course, offer quite a bit more value to pollinators, and then also habitat standards for urban development projects.

[W] So having these standards in place ensures that pollinators are being considered as your community grows.

[W] Lots of things that we can consider for this, a couple of them being minimum requirements for integrating native plants, and also things like green roofs.

[W] So these are a couple ways that municipalities can create habitat and work with developers to ensure that that habitat is being created.

[W] But then you can also advocate for ways that your city or town can support residential gardeners.

[W] A really big one here is reviewing lawn and boulevard or sidewalk strip bylaws to ensure that residents are not being unnecessarily restricted in how they can.

[>> W] Garden.

[>> W] Historically, these bylaws have been pretty turfgrass focused.

[W] Often they have height restrictions that don't really jive with native plant gardening.

[W] Ultimately, what we're hoping for with these bylaws is that they focus on human and ecosystem health rather than esthetics.

[W] And I see this is how things are going in a lot of municipalities in my role as the BCC Canada coordinator, but there's still a lot of work to do here.

[W] So a few things we like to see in these bylaws.

[W] Prohibited plant lists that are extremely specific and focused just on invasive and noxious plants.

[W] If there is a height restriction in this bylaw, having that be tied specifically to turfgrass and then having a really clear definition for what turfgrass is.

[W] So it's not applied beyond that.

[W] And of course, still making sure that there's restrictions on plants that block sight lines for drivers and pedestrians.

[W] We want to make sure people are safe.

[W] To learn more about bylaw change, I highly recommend checking out resources from the Ecological Design Lab at Toronto Metropolitan University.

[W] They've got a website.

[W] They've done a lot of really good work in this topic, and they have one report in particular that outlines some best practices and examples from municipalities across North America.

[W] That's really good.

[W] Cities and towns can also support residents through native plant giveaways, rebates, or even subsidized sales.

[W] This helps get the right plants to people and make sure that it's done affordably.

[W] When sales are held kind of in a downtown location or a more accessible location, that can be really important.

[W] As native plant nurseries often can be a bit of a drive away, which can be a barrier for a lot of people.

[W] And finally, cities and towns can provide pollinator garden consultations where city or town staff will visit residential gardens and provide site specific recommendations for native plant gardening.

[W] So this can really help empower people that are interested in supporting pollinators, but aren't quite sure how to go about it.

[W] Having that in-person support can really go a long way.

[W] So we've talked about getting involved in your city or town and advocating for change to council or municipal staff.

[W] Another route is to join a local community group or nonprofit focused on pollinators and like municipal working groups such as the Waterloo Group that I mentioned earlier, these groups tend to focus on habitat creation and education.

[W] A couple of examples I have here on the slide.

[W] These are close to me.

[W] Pollination, Guelph and Pollinate Collingwood are both doing really great work in both of these cases.

[W] These organizations tend to coordinate some efforts with the municipalities they operate in to maximize impact, as well.

[W] So I'd highly recommend seeing what your options are, both in terms of volunteering with your city or town.

[W] Of course, advocating in your city or town, and then also looking to any separate local groups that are operating there.

[W] And if you find that there's not much happening, continuing to advocate and maybe even considering starting up your own local group could be a really good idea.

[W] So hopefully this talk gave you some ideas about ways you can support pollinators even beyond your home gardening.

[W] And of course, I'm happy to answer any questions that you might have.

[>> W] Perfect.

[W] Thanks, Jordan.

[W] Okay, so I have a couple remaining slides here and then we'll get to our questions.

[W] So just a reminder that the presentation slides for tonight, as well as all the resources that were mentioned, will be posted to the course info page.

[W] If you haven't logged into it already, this is the login information.

[W] Username.

[W] Pollinator.

[W] Steward.

[W] Password PSC 2026.

[W] If you're having trouble logging in, one of the common errors that I've been getting is spacing issues or not using the right capital letters, so we recommend just copying and pasting it right into the login page.

[W] And then it should work perfectly.

[W] Okay.

[W] And a final wrap up slide.

[W] So moving on with our habitat creation sessions tomorrow, Wednesday March 11th, we'll focus on habitat creation on a large scale.

[W] So for those of you who manage rights of way parks, roadsides or municipalities, that is a great session to attend.

[W] And on Thursday, March 12th, we'll complete our habitat sessions with a focus on supporting pollinators in an agricultural landscape.

[W] So as mentioned before, you only need to attend one of these three sessions for your certification.

[W] But we suggest attending all three because all three are amazing and we have some really great guest speakers lined up for you.

[W] Okay, so with that, I'll pass things over to Avery, who will lead our Q&A period.

[>> W] Thank you Sarah and Jordan for excellent presentations, and I will just amplify all the kudos in the chat for how wonderful and informative you both were in your talks.

[W] So I'll start off with a question from Jeremy.

[W] This is for Sarah.

[W] When in the winter do I clean up debris from last year's annuals and perennials?

[W] I typically chop and drop the debris until it gets put into my compost bin.

[>> W] So can you suggest a timeline?

[W] That's a good question.

[W] It's a frequent question, and it's not an easy to answer question a lot.

[W] A lot of times you see like, oh, you know, once temperatures are consistently above 50 degrees, that's the time to clean up your garden.

[W] But I've done a bit of reading on this and you know, it's so species dependent because different pollinators are emerging at different times.

[W] And like of course, depending on, you know, if you're in a more xeric area or a more mesic area that's going to alter things.

[W] And so it's very much a nuanced question with not a straightforward answer.

[W] But I have decided, like, the best answer is to do what?

[W] To extend it as long as you're willing to tolerate it.

[W] I guess, like the longer that you can leave it, the better, because you're going to have maximum chance of anything that was overwintering in there.

[W] Emerging.

[W] If you get to the point that you're like, okay, I just have to cut it.

[W] I mean, everybody has their limits, right?

[W] And you're doing what you can do.

[W] So just pat yourself on the back for that.

[W] But if you get to the point that you need to cut it, just cut it.

[W] And you know, don't don't burn it or put it out for the trash.

[W] Just bundle it somewhere in a marginal area of your yard, a back corner along a fence.

[W] You know, if you have a little bit more acreage, maybe like in a wooded area.

[W] So it's not necessarily front and center in your lawn, but it's still on site.

[W] And then those pollinators will still emerge when they're ready and you're not removing them from your landscape.

[>> W] Excellent.

[>> W] Thank you.

[>> W] Now, this is another question that I saw repeated a lot in the chat.

[W] And the question is, how can you prevent gophers from eating native plants?

[W] They get to the native plants so quickly, and people are wondering what the best way to mitigate or discourage gophers and also deer are.

[W] If you have any suggestions.

[>> W] Gophers, deer, rabbits, all of the mammalian pests, right?

[W] Also, another common problem.

[W] So I know that I, I don't know a lot about gophers.

[W] I'll be honest.

[W] I know that I have challenges with rabbits and deer, and I'll let any of you other P2 folks jump in.

[W] If you have anything to add to this for sure, especially on gophers.

[W] But I know that they very fragrant plants typically are not a favorite of them, so mints, you know, like mountain mint.

[W] I'm thinking bee balm.

[W] Things that are very fragrant.

[W] They tend to avoid.

[W] And a lot of those plants, especially those two that I mentioned, spread very readily.

[W] And they can form pretty dense stands.

[W] So, you know, kind of thinking about placement of those plants, putting them on the margins of your garden and maybe the more vulnerable plants, more interior could potentially deter them.

[W] Now if they're hungry enough, no promises.

[W] And just like exclusion, you know, cages around the plants or fences to keep them out is honestly probably your best bet.

[W] Although I know that's not what most people want to hear.

[W] A lot of people don't want to put fences and cages all over their gardens.

[W] But I guess I would try like the densely planted mint families around the borders and see if you have luck with that.

[W] And then, of course, like when you're selecting plants, just try to select those that are marked as deer and rabbit resistance.

[W] Although I know that's not foolproof either.

[W] I know a lot of people do that and they come and eat them anyway.

[W] The problem is, you know, just depending on where you live, there's just so little habitat left for them that I think they get desperate and they're going to go for whatever they can find.

[W] And you can just kind of keep doing your best and just keep planting.

[W] And some of it's going to make it and some of it's not, but I don't know.

[W] Does anybody have any opinions on gophers.

[W] That's not something I've had much experience with.

[W] No.

[W] Oh darn.

[>> W] I'm gonna point our participants to the chat.

[W] There are a lot of ideas floating around from our PSC network, and I think that's a good reminder that you all have a network in your communities.

[W] You can talk to people about what's worked and kind of crowdsource information.

[W] So I'm going to move on to a question sort of aimed at Jordan and Sarah.

[W] Leave the leaves is a challenge when code enforcement comes knocking, but I've used it as an educational movement and have had a lot of success talking with people from an educational point of view.

[W] Do either of you have any tips on dealing with hoa's and other restrictions that may prevent pollinator planting?

[>> W] Yeah, I'd say it's definitely a tough one.

[W] And I think you're on the on the right track with the advocacy.

[W] It really comes down to kind of getting the word out, getting enough people interested in it, and kind of putting pressure on either the HOA or the government to consider this and integrate this kind of into what they're doing.

[W] I know Toronto in particular has really good language on their website that that talks about how people are allowed to have leaves on their yard.

[W] And, and this came from kind of a lot of advocacy over the years that Toronto now has several really great pollinator programs and some pretty good bylaws in place.

[W] So it can definitely feel like a long road.

[W] And also exploring some maybe more creative approaches with your municipality.

[W] I recently had a call with one of the municipalities involved in Bee City, and we were just kind of brainstorming around this and they were thinking, oh, it could be really cool to try to have a campaign where the city will actually collect leaves from people and then bring them to local parks and spread them around in the park, and then that can also be an educational campaign to talk about the value of the leaves.

[W] And still participating in conservation.

[W] And for the people that really care about it, having the leaves off of their lawn, but they're still somewhere else where they can kind of serve their purpose.

[W] So I'd say continue the advocacy and yeah, look into some maybe creative ideas to.

[>> W] I'll also just add that was a really good response.

[W] Jordan.

[W] I just shared a resource in the chat with you all though.

[W] We recently just put together a guide to guides for residential habitat, whether it's like communicating with your municipality or your HOA, and it's just full of resources to kind of help you along that vein.

[W] So I just wanted to add that on to what Jordan said.

[>> W] That is such an excellent resource, and we will make sure to have that available along with the recording on the course website.

[W] My next question is from Jennifer Webb, and she says, I'm curious to know what the current recommendations are for pollinator gardens in fire prone areas.

[W] Last year, a big topic in the landscaping and horticulture world was fire scaping.

[W] What's a good balance?

[W] To stay safe but also protect our pollinators?

[>> W] That's you.

[W] Sarah.

[>> W] Oh.

[W] Gee, this is another one.

[W] You guys are giving me some hard ones.

[W] I live in Arkansas.

[W] I know out West this is much more of a prevalent issue for many of you.

[W] Unfortunately, and I admittedly and not up on the research on it, I know I was trying to quickly catch on on the chat, and I noticed that somebody was saying that they're kind of specifically referring to some research that had been done.

[W] But I mean.

[W] Yeah, I, I don't know, I know that, you know, with fire scaping, removing vegetation is important.

[W] Maintaining that distance from homes and structures is important.

[W] And just the whole xeriscaping concept.

[W] But as far as you know, documented effects on pollinators and what that's looking like already.

[W] If if there's been research gathered on that, I don't know, Anthony or Avery or Jordan, do any of you.

[>> W] I so for tomorrow, for our large landscape session, we'll talk about fire a little bit.

[W] But what we can do is we can do a bit of research as a team, and we can the resources that we find, we can put on the course info page.

[>> W] I will mention that there has been some research shown that native bees a lot of ground nesting bees actually have fire worked into their ecology and aren't totally decimated by wildfires, wildfires.

[W] And that's especially true for really small bodied, ground nesting bees and wasps.

[W] I can try to link that that paper as well.

[W] In our course resources.

[W] So moving on.

[W] This is a question for Jordan.

[W] I know that one can obscure your location when posting to iNaturalist, but this person has still encountered people who don't want to post because of location issues and privacy.

[W] Can a post be made without a location, and if so, what value does that have for the scientific community?

[>> W] That's a really good question.

[W] I honestly haven't thought a lot about it, and I can totally understand why someone might not want to share their location.

[W] And I'm not sure exactly how it works in terms of the specificity if you can share kind of without the exact location, but kind of a broader area.

[W] Anthony, I might yeah, I think you might have a little more experience with that. Naturalist.

[>> W] Yeah, from my experience, I'm not.

[W] You can hide hide your location for the observation.

[W] So you wouldn't necessarily be joining, I guess projects that require the location for those observations.

[W] And then what it would be used for then is just your own personal knowledge of what, you know, different species that your garden is attracting.

[W] So it's more of like a personal endeavor at that point, which I think is just as interesting to figure out, you know, the pollinators that you are supporting with the habitat that you've put in.

[>> W] So, yeah, even without your location, there's still really cool benefits of just seeing what's out there and what you're attracting.

[W] Thank you both.

[W] Now moving on to a question for Sarah in using Solarization.

[W] What are the risks of reducing soil health?

[W] How long can microbial health be solarized.

[>> W] What about the mycorrhizal fungal network?

[W] Yeah, this is a great question.

[W] And that's really why I kind of prefaced all of those techniques with like none of them are perfect and they all have a negative.

[W] Well, I won't say all, but you know, some some have more negatives than others.

[W] And you hit on that perfectly with Solarization.

[W] I mean, I talked about the microplastic degradation a bit, but there's another one, right?

[W] Because absolutely.

[W] Especially if you go that long term two season black plastic solarization route, I mean, you are going to have a completely dead landscape under that.

[W] When you peel that plastic back and you're going to be starting from ground zero.

[W] So.

[W] And, you know, that may be a no go for some people.

[W] Some people may say that that method is not for me.

[W] So, you know, maybe now you have some others to try.

[W] And a lot of it is just experimenting what works for you.

[W] But you're absolutely right.

[W] When you perform a long term solarization, you're killing off the entire microbiome underneath that sheet of plastic.

[W] And you know, they make you can like, reinoculate it with mycorrhizae and things like this.

[W] You can actually buy those commercially.

[W] If you wanted to try to go in and speed that process back up.

[W] But but yeah, you're right that that is a downside.

[W] Another downside of Solarization.

[>> W] Excellent.

[W] Things are have different benefits and consequences.

[W] And it really is exactly what works for you and what each grower is comfortable with.

[W] Now moving on to a question for Jordan.

[W] Mary lives in a small rural community.

[W] What sort of advocate role could work with almost no budget?

[>> W] Yeah, that's a really good question.

[>> W] I would maybe start first with some of the things I discussed, like the the yard bylaws, things that are maybe kind.

[W] Of where.

[>> W] The municipality is maybe prohibiting people from taking certain actions.

[W] That's something that can be changed, kind of at no cost.

[W] So I would say that's a really good starting point.

[W] And then it might be more difficult for them to do things that that have some cost.

[W] I know there's several communities where there's actually particular donors in the community that are particularly passionate about pollinators.

[W] There's cases where people have kind of made a donation to support a program, to allow other people in the community to be able to either purchase or get a discount on native plants.

[W] But this also might just be a really good case of being able to start up a local group in your community and doing what you can with that kind of your neighbors that are also really passionate.

[W] Because I know a lot of the time these communities tend to be pretty tight knit, and this could be a really great way to kind of get together, do some educational events, and especially in rural areas where there's a lot of people that might be farming, there's a lot that people can do in agricultural landscapes to support pollinators.

[W] And then also as a local group, you might be able to kind of synergize with your municipality or township or whatever it may be, to say if you're willing to maybe kick in this amount.

[W] We've got kind of the people that are willing to support and just see what they might be able to do, but definitely start with kind of the really easy, no cost things that are just like, please change what is in writing here and let people let people garden.

[>> W] Excellent.

[>> W] Now I'm wondering if Sarah or Anthony has anything to say about heirloom seeds and heirloom plant varieties, and how they can be included into backyard and balcony pollinator gardens?

[>> W] I'm going to pass that one to you, Sarah.

[>> W] Okay, I guess, like when I hear, I mean, the concept of heirloom is concrete in my mind.

[W] But with regards to native plants, I guess it makes me think more about like, kind of like that local ecotype seed that you're talking about.

[W] Right?

[W] So something that would be inherently, culturally native and appropriate to that area.

[W] And that kind of goes back to that project wingspan program that we have that we were talking about is just kind of starting these grassroots efforts, which, you know, anybody can do this for your own garden where you go out on the landscape and you're collecting that local ecotype seed that's adapted for your region.

[W] And it's evolved to be, you know, in the conditions that it's living in, in your forests and your prairies around your house.

[W] But just always say, like, make sure if you're going to do that, you know, that you get permission or you secure a permit, depending on if it's on public land or private lands.

[W] But that's a really great way to obtain, you know, resources for your own habitat.

[W] If you if you want to get truly local ecotype seed because it is hard to find, which is why we have this project Wingspan Initiative.

[W] You know, we have organizations that want to install.

[W] Appropriate seed.

[W] And it's hard to find sort of like ordering it from somewhere where it's coming, you know, from the West coast to the East coast or something.

[W] And then it's not going to be very well adapted.

[W] So one of the best things that you can do is just collect it locally.

[W] And then there's of course like considerations, if you do go harvest it, you only want to harvest 20% of it so that you're leaving that and you're not decimating the area.

[W] And it will come back in its own native habitat.

[W] But I don't know if that really answers the question.

[W] If I hopefully that answered your question.

[>> W] As a follow up, do you think you could discuss a little bit about planting food plants in addition to native plants for pollinators?

[>> W] Yeah, I would if that.

[W] If you're somebody listening and you are growing food plants, I would definitely go check out that resource and I can find maybe during the next question I can look it up really quick.

[W] But that grow native organization out of Missouri is really fantastic.

[W] And I can try to link that resource, but I use it a lot when I do my own food.

[W] Gardening is just to try to incorporate, you know, native plants to attract pollinators into those food plant plots that you're creating because it really is going to make a difference.

[W] It's going to get higher visibility for your own food plants that you're growing.

[W] It's going to increase your yield.

[W] And so, you know, if you're using heirloom tomato seeds, you know, that require like buzz pollination from a bumblebee, then how can I attract bumblebees into my garden so that more of that, you know, natural pollination process is taking place, and then I end up with more of my own crop yield.

[W] So I'll try to find that here in a minute and link that.

[W] But I think it's a really good resource that you could benefit from.

[>> W] Awesome.

[W] I think we have time for one more question.

[W] I'm just going to pick which one.

[W] And I think I'm going to go with this one for Jordan, this is about monitoring bees, which we're going to talk about in a future session.

[W] But Sharon is wondering where is the best place to find out what pollinators are present in different months throughout the year in your area?

[W] We currently have ground nesting carpenter bees, which have been fascinating, but I know they go away.

[W] How can I find out what's coming next?

[>> W] That's a really good question.

[W] I would say looking at iNaturalist is a really good way to see what's kind of local to you.

[W] And this is just making me think I'm not actually sure.

[W] Is there a way to actually filter on iNaturalist by time of year to see?

[>> W] I see Anthony is nodding, and I would highly recommend doing that if you're able to kind of filter by year looking specific time blocks.

[W] Yeah, that's exactly it.

[W] And I mean iNaturalist is is so useful for so many things.

[W] I mean, I find I go on it just and I like I search my location and then I filter it to, you know, bees.

[W] And then you get to see all the different species of bees that have been documented within your area.

[W] So it's a great way to find to learn about the biodiversity.

[W] And then if you click on some of the pictures that are, you know, people have been posting within your location, you can see the time stamps too.

[W] So you can see like, oh, this bee was seen in April but wasn't seen again in October.

[W] So that could mean that they're usually, you know, early.

[W] They emerge early.

[W] And that's usually when they're out and about versus late season pollinators.

[W] So yeah, looking at the timestamps on observations, looking at the different species that are posted in your area from fellow community scientists is a really great way to just learn more about how those different animals and pollinators are interacting with the local plants.

[>> W] I totally agree, as a last addition to that question, I naturalist is such a powerful tool and if you view it on your laptop or a desktop version of the app, you can select the family Apidae, see a bunch of different types of bees, and it will give you a month.

[W] Timeline of abundance so you can see which months have the most bees coming out and are active in the community.

[W] So.

[W] And you can also filter by area.

[W] It's one of the best forms of social media in my opinion, so I highly encourage everyone to get on Inat.

[W] And with that, I'm going to wrap up the Q&A session and pass it back to Anthony.

[W] And as a reminder, if anyone has any particularly burning or specific questions, you can email me a row at pollinator org and I will try to answer as best I can.

[W] Thank you guys.

[>> W] Thanks, Avery and I did see a question in the chat about asking about receiving credit that you actually attended this session and that'll be in the step one form.

[W] There will be a place to fill out what you learned in each of the habitat creation sessions this week.

[W] So you would just fill out the the the section for five for the home gardens.

[W] So it's really simple.

[W] Once you see the form it's like super straightforward to fill out.

[W] But yeah.

[W] So to close out today, thank you so much to our presenters.

[W] Jordan.

[W] Sarah, thank you so much, Avery, for leading the Q&A period.

[W] And thanks to all of you for joining tonight, and hopefully we'll see you again tomorrow for our habitat creation session for large land managers.

[W] Thanks everyone, and enjoy the rest of your night.