

Backyard Habitat Certification Program Volunteer Manual

Spring 2021



Together we're planting roots, creating habitat, and changing the world,
one yard at a time.

Backyard Habitat is a collaboration between Portland Audubon and Columbia Land Trust.

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Program Overview

History and Growth of the Program

In 2006, in an ivy-covered area of Portland's SW Hills, a group called the West Willamette Restoration Partnership launched a pilot program to achieve a modest goal: to help 25 residents remove noxious weeds from, and restore the native habitat to, their yards. The Backyard Program, as it was called, was one sliver of a much bigger effort by many partners to restore a 35,000-acre forested corridor that was one of this region's most important remaining wildlife habitats. Coyote, deer, birds, and beneficial insects all lived in the area, but its health was seriously threatened by noxious weeds. The Backyard Habitat program, then as now, recognized that residents, whose yards adjoined—or even were a part of—this natural area had to be part of the effort to keep the native habitat healthy and thriving. People had to be part of the solution.

It wasn't clear that the Backyard Habitat pilot would work. After all, it asked participating residents to remove all noxious weeds present and to replant with native plants. Marketing consisted of yard signs and word-of-mouth. Would people be interested? They weren't just interested; they became enthusiasts. The more weeds they removed, the more native plants had space to grow, and the more birds showed up to forage. Word spread. Others wanted to join from throughout the region.

In 2009, Columbia Land Trust and the Portland Audubon joined forces to launch the program Portland-wide. 10+ years later, the Backyard Habitat Certification Program (BHCP) has helped thousands of people create habitat where they live and gather. We currently have over 7,000 participants, countless partners and funders, and have developed roots in communities throughout Clark, Clackamas, Multnomah, and Washington counties. Together, enrolled sites span 1,700+ acres and counting, with approximately 1,000 new yards and outdoor spaces being added to the program every year. For more data on our program accomplishments, visit our website.

Why the Program Matters

The Willamette Valley has been radically transformed since European colonization and the forced removal of indigenous people from their land. Displacement, European settlement, industrialization, and urbanization, among other transformative factors, have dramatically altered this region, its ecosystem, and the people that have lived here and tended the land since time immemorial. Understanding the history and legacies that continue to shape this place we all inhabit is critical. To learn more about the history of our region and the state, consider reading, "The First Oregonians".

As the region has been transformed, the ecological impacts have included the loss of native species and habitat, significant declines in native pollinator populations, increased hazards to the 200+ species of migratory birds that live or fly through this region, radically altered streams—the lifelines of many natural areas, and noxious plant infestations.

These impacts are projected to increase as the population of the Portland-Vancouver Metro area continues to grow. According to regional government estimates, the regional population is expected to double by 2050. Further land development will inevitably occur, with subsequent consequences for the natural world, our animals, our native plant communities, and the people that call this region home.

To date, regional protection and restoration efforts have focused most heavily on public lands, public right of way, and regulating new development. However, residential lands make up about 40 percent of the Portland metropolitan area, and consequently, have a significant role to play in developing healthy habitats for people

and wildlife. How we garden and landscape the land where we live and gather can help prevent future introductions and the spread of aggressive weeds, can provide safe passage for wildlife, and can reduce contaminated runoff into our waterways.

Portland Audubon and Columbia Land Trust Overview

The program is a collaborative effort of Portland Audubon and Columbia Land Trust. Since 1902, Portland Audubon has worked to inspire all people to love and protect birds, wildlife, and the natural environment upon which life depends through its conservation and environmental education programs, its 170-acre Nature Sanctuary, and its Wildlife Care Center. Since 1990, Columbia Land Trust has worked to conserve and care for vital lands, waters, and wildlife of the Columbia River region through sound science and strong relationships, conserving over 45,000 acres of natural areas, farmlands, forests, and critical habitat.

Diversity, Equity, and Inclusion

In partnership with our two organizations, Backyard Habitat is actively working to grow in our learning and practice around diversity, equity, and inclusion (DEI) and to weave it into the fabric of our program, our organizations, and the larger community. As an essential part of our program, we invite volunteers to engage with us in advancing this growth and practice.

In order to build healthy ecosystems for our collective community, it is essential to recognize and dismantle the legacy of colonization, systemic racism, and oppression that black and indigenous communities, communities of color, low-income communities, and frontline communities are still living with. Exclusion and displacement are woven into the history of our country's conservation movement and continue to show up within the movement, our community, our organizations, and our program. We will continue to examine the ways our organizations and program operate within and uphold these structures, work towards addressing past and present wrongdoings, address gaps in our programming and policies, and build strong and deeper relationships with the diverse communities of our region. We are dedicated to partnering in ways that increase environmental benefits for everyone in an equitable way.

We envision a future where the culture of Backyard Habitat is inclusive and welcoming of all people, where staff and volunteers reflect the diversity of our region, where our program is community-and-culturally informed and responsive, and where program services are distributed equitably and collaboratively. Like an ecosystem depends on many types of plants and wildlife, a community thrives when it fosters diversity.

About the Certification Criteria

The Certification Criteria was developed in collaboration with multiple regional experts and land managers. We periodically revisit the criteria to stay current with on-the-ground realities and the priorities of our partners. We are planning for the next review in 2022-2023.

Certification Criteria

Silver	Gold	Platinum
Priority noxious weeds		
Remove all “silver” noxious weeds	Remove all “silver & gold” noxious weeds	Remove all three levels of noxious weeds
Naturescape with Native Plants		
Naturescape at least 5% of the site with locally native plants* from at least 3 of the 5 vegetation layers	Naturescape at least 15% of the site with locally native plants* from at least 4 of the 5 vegetation layers	Naturescape at least 50% of site with locally native plants* from all 5 of the vegetation layers
Pesticides Reduction		
No use of RED zone chemicals. Use YELLOW zone chemicals only as part of an IPM strategy.	No use of RED or YELLOW zone chemicals. Always use IPM strategy.	No use of RED or YELLOW zone chemicals. Always use IPM strategy. Take Metro No Pesticides Pledge.
Wildlife Stewardship		
Pick at least 1 item from below.	Pick at least 2 items from below. If have a cat, create a plan to reduce its wildlife impacts.	Pick at least 3 items from below. Cats kept inside or in outdoor enclosures 100% of the time.
Stormwater Management		
Pick at least 1 item from below	Pick at least 2 items from below	Pick at least 3 items from below
Education & Volunteerism		
		Pick 2 items from below

Wildlife Stewardship Menu Items		
1. Wildlife Water Feature: natural source, maintained bird/bug bath, etc	2. Pollinator & Beneficial Insect Nesting Habitat: small brush/rock piles, bundles of stems/branches, mason bee house	3. Bird/bat nest boxes: appropriate for native species, clean annually
4. Native Pollinator Meadow: native forbs/grasses which bloom through the growing season	5. Reduce Bird/Window Collisions: assess problem windows, treat to reduce strikes	6. Reduce Outdoor Lighting: outdoor lights off during migration; Mar-May, Sept-Nov
7. Cats Indoors: or in an outdoor enclosure	8. Snags and Nurse logs: provide deadwood onsite, >5ft long	
Stormwater Management Menu Items		
1. Large canopy tree: over 30ft, cannot be nuisance species	2. Increase Naturescaping: to 10% higher than your certification level requirement	3. Remove impervious surfaces &/or grass: more than 500ft ²
4. Disconnect downspouts: where appropriate	5. Restore Soils: leave the leaves	6. Ecoroof: according to City specs
7. Adopt eco-friendly maintenance practices: petroleum-free yard care, responsible fertilizer use, use BHCP Landscaper Directory contractors, etc	8. Water Conservation: Eliminate lawn irrigation, water in morning and evening only	9. Raingardens: where appropriate
Education & Volunteerism		
Volunteer with BHCP	Recruit 2 neighbors to sign up	Attend continuing education classes
Allow site/yard to be showcased in yard tours	Participate in OSU Extension Master Gardener Programs	Other

1. Removing Priority Noxious Weeds

Noxious weeds are a serious problem. An estimated 4,600 acres of public natural areas are lost to noxious exotic plant species every day. As noxious weeds spread rapidly and dominate new areas, they displace desirable plants in our yards, on our farms, and in our forests.

Noxious weeds are also a danger to our environment and the economy. These introduced species cost our region millions of dollars in lost agricultural production, environmental degradation, and added maintenance costs. Once noxious plants spread to natural areas, they harm native plants and wildlife and can be impossible to eradicate.

Silver Weeds *These weeds require a multi-year strategy			
Common Name	Scientific Name	Common Name	Scientific Name
Garlic mustard	<i>Alliaria petiolata</i>	Policeman's helmet	<i>Impatiens glandulifera</i>
Spotted/Meadow & Diffuse knapweeds	<i>Centaurea spp.</i>	Yellow flag iris	<i>Iris pseudacorus</i>
Traveler's joy	<i>Clematis vitalba</i>	Yellow archangel	<i>Lamium galeobdolon</i>
Scot's broom	<i>Cytisus scoparius</i>	Purple loosestrife	<i>Lythrum salicaria</i>
Spurge laurel	<i>Daphne laureola</i>	Pokeweed	<i>Phytolacca americana</i>
Ivy (all cultivars)	<i>Hedra spp.</i> , all cultivars	Knotweed*	<i>Polygonum spp.</i>)
Giant hogweed	<i>Heracleum mantegazzianum</i>	Evergreen/Armenian blackberry	<i>Rubus laciniatus</i> and <i>Rubus armeniacus</i>
Meadow hawkweed	<i>Hieracium caespitosum</i>		
Gold Weeds *These weeds require a multi-year strategy			
Common Name	Scientific Name	Common Name	Scientific Name
Italian Arum*	<i>Arum italicum</i>	Noxious Trees (under 20ft)	
False brome	<i>Brachypodium sylvaticum</i>	Norway Maple	Norway Maple
Butterfly bush	<i>Buddleia davidii – all varieties)</i>	Tree-of-heaven	Tree-of-heaven
Hedge bindweed	<i>Calystegia sepium</i>	English Hawthorn	English Hawthorn
Pampas grass / jubata grass	<i>Cortaderia ssp.</i>	English holly	English holly
Shining geranium	<i>Geranium lucidum</i>	Black Locust	Black Locust
Robert geranium i.e. Herb Robert	<i>Geranium robertianum</i>		
Japanese butterbur	<i>Petasites japonica</i>		
Lesser celandine*	<i>Ranunculus ficaria</i>		
Platinum Weeds			
Common Name	Scientific Name	Common Name	Scientific Name
Fennel	<i>Foeniculum spp.</i>	Noxious Trees (over 20ft)	
Creeping Jenny	<i>Lysimachia nummularia</i>	Norway Maple	<i>Acer platanoides</i>
Reed canarygrass / Ribbon Grass	<i>Phalaris arundinacea</i>	Tree-of-heaven	<i>Ailanthus altissima</i>
English / Portuguese Laurel	<i>Prunus spp.</i>	English Hawthorn	<i>Crataegus laevigata</i>
Large & Small-leaf periwinkle	<i>Vinca spp.</i>	English holly	<i>Ilex aquifolium</i>
		Black Locust	<i>Robinia pseudoacacia</i>

Weeds that were REMOVED from the list in 2014

- **Silver** - Gorse (*Ulex europaeus*)
- **Gold** - Purple starthistle (*C. solstitialis* & *C. calcitrapa*)
- **Platinum** - Spatulaleaf loosestrife, Creeping buttercup (*Ranunculus repens*)

For Backyard Habitat Certification:

- ✓ **Silver-level sites** have no silver weeds
- ✓ **Gold-level site** have no silver or gold weeds
- ✓ **Platinum-level sites** have no silver, gold, or platinum weeds

Noxious Weeds Resources

- **Backyard Habitat Certification Program**
backyardhabitats.org/benefits/site-report-resource-library/#Noxious
The BHCP Resources Library has a list of links where you can find further information on noxious species.
- **4-County CWMA**
<https://4countycwma.org/aweeds/>
The Clackamas/Clark/Multnomah/Washington County Cooperative Weed Management Area is a partnership of organizations, agencies, and non-profits working to combat noxious weeds in our region.
- **East Multnomah Soil & Water Conservation District (EMSWCD)**
emswcd.org/on-your-land/weeds/weeds-to-know/
Get resources and learn about workshops offered in East Multnomah County.
- **Help Stop Noxious Plants poster**
<https://www.portlandoregon.gov/bes/article/98648>
Learn all about noxious plants with the City of Portland's Noxious Plants Poster
- **King County Washington list**
www.kingcounty.gov/services/environment/animals-and-plants/noxious-weeds.aspx
King County's Noxious Weed Information and Services can teach you everything you need to know about noxious weed identification and control.
- **West Multnomah Soil & Water Conservation District (WMSWCD)**
<https://wmswcd.org/types/invasive-species/>
Watch educational weed videos and learn what's being done to control weeds in West Multnomah County.

Additional resources

- **OPB's The Silent Invasion**
<https://www.opb.org/programs/invasives/>
Watch OPB's video about noxious species, where they come from, and what we can do to stop them.
- **No Ivy League**
www.noivyleague.com
The No Ivy League works to empower youth, educate the public, and remove ivy from Portland's parks.
- **Tree-of-heaven Eradication Now (TEN)**
www.tenpdx.org
TEN is a non-profit working to control the unchecked spread of this fast-growing tree.

2. Naturescaping with Native Plants

Naturescaping is a gardening practice in which simple techniques are used to emulate nature. Native plants are selected that are specifically adapted to the light, soil, and moisture conditions of a specific area, ensuring the “right plant for the right place”.

Why Native Plants?

Native plants are adapted to our climate, often do a better job of managing stormwater, and are documented to best support local wildlife. Over 90% of our 10,000 native insects rely exclusively on native plants for survival. 96% of terrestrial birds rear their young on native insects. 100% of amphibians are “meat-eaters”, their diets consisting of insects and other arthropods. *Even small amounts of native plants make a difference!*

For a comprehensive list of locally native plants, please consult the Portland Plant List (PPL) (portlandoregon.gov/citycode/article/322280). The Backyard Habitat program relies on the PPL to denote whether a plant is considered locally native. Please note that for the purpose of this program cultivars and varieties of plant species are not considered locally native.

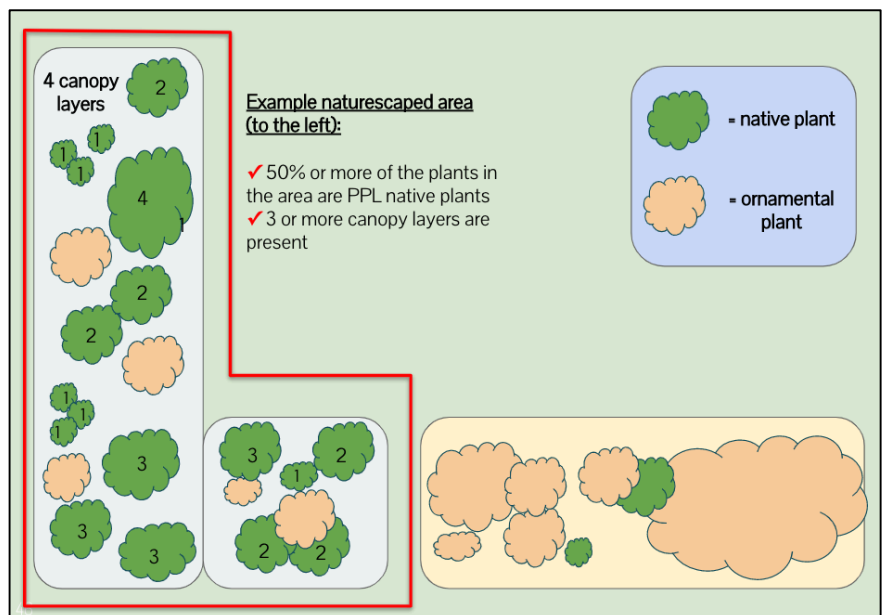
Grouping Plants

When naturescaping, look to nature as a guide. Use the “right plant, right place” concept to group together compatible plants that have similar growing requirements (i.e., sun, soil, water).

Planting an odd number of plants (3-5-7) of the same species close together is a good practice. By grouping plants of the same species, we better support pollinators by offering foraging opportunities closer together.

During the initial site visit, the Habitat Technicians identify areas that are good for grouping native plants into plant communities, in which native plants from multiple canopy layers (with similar growing requirements) can be planted together. In other words, creating “naturescaped areas” in one’s outdoor space in which:

- **At least 50% of the plants in an area are native plants;**
- **At least 3 native plant canopy layers are present**



Vegetation/Canopy Layers

In the Backyard Habitat program, we often talk about the five different canopy layers, which are:

1. **Ground cover layer** - forbs, grasses, herbaceous plants, etc.
2. **Small/Medium Shrub layer** - woody and less than 5 ft. tall when mature
3. **Large Shrub layer** - between 5 and 20 ft. tall when mature
4. **Understory tree canopy** - less than 30 ft. tall when mature
5. **Overstory tree canopy** - over 30 ft. tall when mature

Each program participant receives a personalized site report that includes recommended native plants for each of these five canopy layers.



Providing multiple canopy layers is important for creating a dynamic habitat. Different canopy layers fill different needs (i.e. food, shelter, nesting, etc.) and support different birds, pollinators, and other wildlife.

For Backyard Habitat Certification:

- ✓ **Silver-level certification:** at least 5% of the yard planted with locally native plants & 3 of 5 canopy layers present
- ✓ **Gold-level certification** at least 15% of the yard planted with locally native plants & 4 of 5 canopy layers present
- ✓ **Platinum-level certification** at least 50% of a yard planted with locally native plants & 5 of 5 canopy layers present



Photos: Native plants grouped together from multiple canopy layers. *Left*: Amber R's yard *Right*: Larry T's yard

Erosion Control

Native plants have extensive root systems that improve the ability of the soil to infiltrate water and withstand wet or erosive conditions. Native plant species often have greater biomass below the surface. In this illustration, note the grass shown on the far left, which, when compared to native grass and forb species, exhibits a shallow root system.

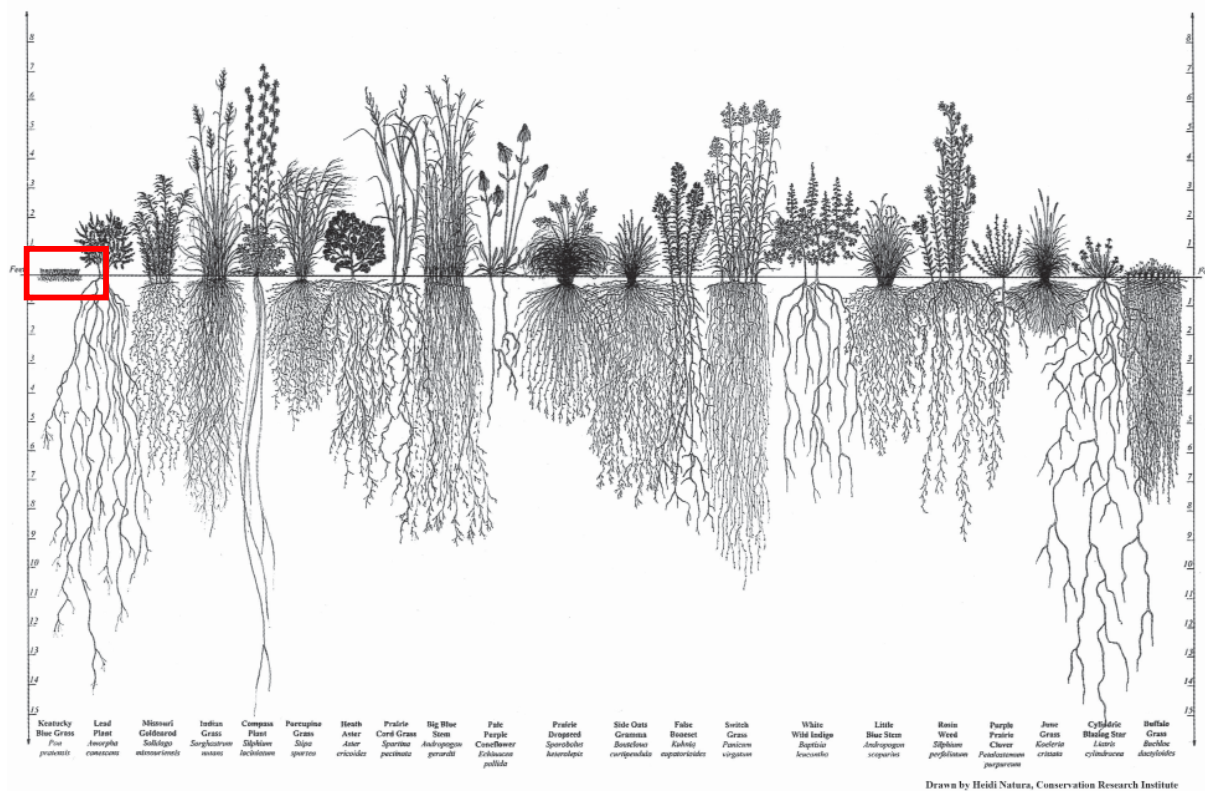
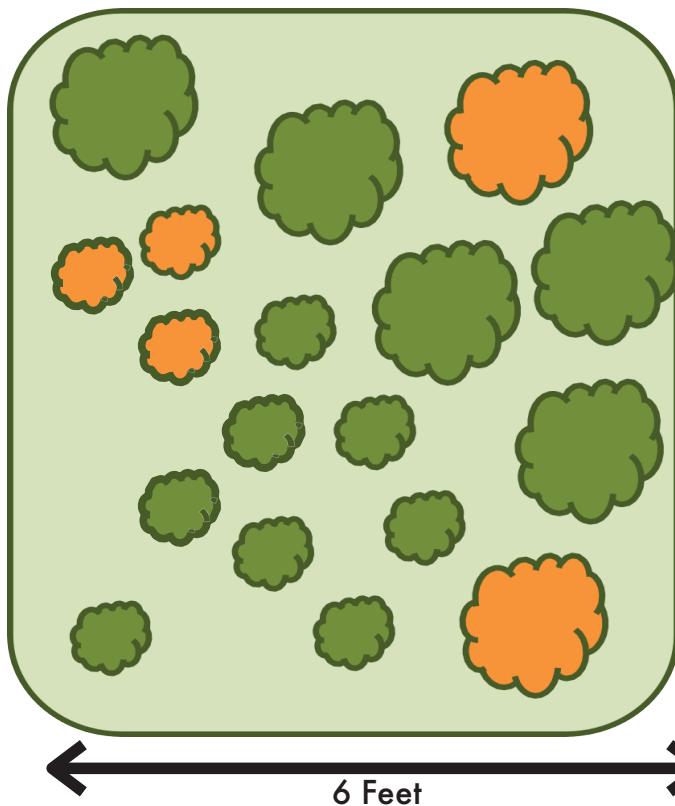


Illustration provided by Heidi Natura of the Conservation Research Institute.

Calculating Naturescaped Area

1. Count beds/areas of the yard that are planted with mostly (50% or more) Portland Plant List (PPL) native plants

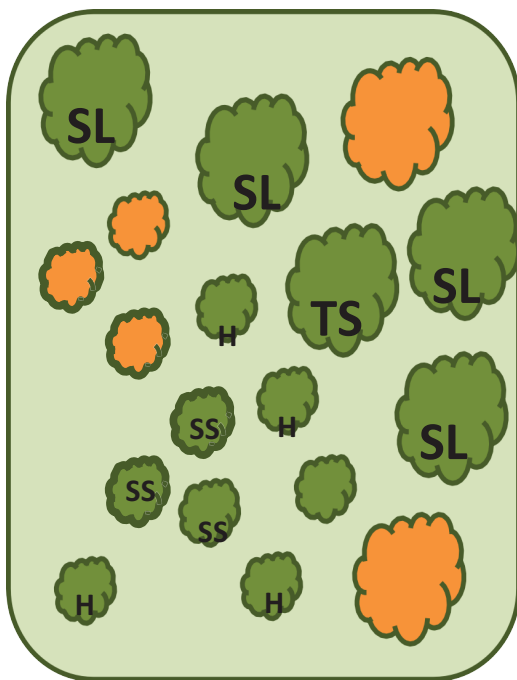


Orange = Ornamental plant
Green = Native plant

Example to the left:

Naturescaped area = 48 sq. ft (6ft x 8ft)

2. Determine that 3 or more canopy layers are present in the area.



The 5 Canopy Layers include:

- H – Groundcover Layer
- SS – Shrub, small/medium
- SL – Shrub, large
- TS – Tree, small
- TL – Tree, large

Example to the left:

4 canopy layers are present
(Ground cover layer, small shrub, large shrub, & small tree)

3. Reducing or Eliminating Pesticides

Decreasing, and eventually eliminating, the use of pesticides is essential for pollinators, birds, other wildlife, and for our health and well-being. The Backyard Habitat Program encourages our participants to use Integrated Pest Management (IPM) and, ideally, to become entirely pesticide-free.

What is Integrated Pest Management (IPM)?

Integrated pest management (IPM) is a multi-step approach to controlling “pests” and weeds. The goal is to replace or reduce the use of pesticides, including insecticides and herbicides, with natural methods whenever possible. We have many local beneficial insects. By using IPM, we create healthier outdoor spaces for people and pets, healthier rivers and streams, and healthier habitats for fish and wildlife

How to use IPM

1. **First, OBSERVE the problem for 1-2 months and IDENTIFY what is causing the problem.**
 - IF the problem is a plant that you think may be a problematic weed, THEN use local resources to identify the plant.
 - IF the problem is an insect, THEN use local resources to identify the insect and confirm whether it's *beneficial or harmful*.
2. **Next, EVALUATE whether you need to take action or not.**
 - IF the problem has been identified as a *harmful* weed, THEN it's best to *take action*.
 - IF the problem has been identified as a *harmful* insect, THEN it's best to *take action*.
 - IF the plant or insect has been identified as *beneficial or “neutral,”* THEN it's best to *create a healthy and balanced ecosystem* that promotes healthy plants without removing the beneficial insects.
3. **When action is needed, SELECT the most natural solution first, such as:**
 - Hand pulling weeds.
 - Densely planting native plants so that taller plants provide shade to smaller ones. Native plants know how to work together to create healthy biomes in the soil.
 - Applying healthy fallen leaves or mulch around plants. This helps prevent them from drying out and becoming stressed, which makes them vulnerable to pests.
 - Using the jet setting on a water spray nozzle to knock aphids and other pests off of plants.
 - Cleaning up any diseased leaves to reduce its ability to spread.
4. **Finally, continue these methods for 1-2 years and MONITOR the problem. It can take time for ecosystems to return to balance.**
 - If the problem persists, then consider choosing the least hazardous product available.
 - Consult with local resources to determine hazard and toxicity levels.
 - Make sure to apply any products according to the instructions provided. If not applied properly, many pesticides/herbicides/insecticides can be very harmful to people, pets, and wildlife.

IMPORTANT NOTE: For any certification (silver, gold, or platinum), knowledge and use of IPM are required. If someone is awarded certification, you must ensure this conversation occurs, and you must make sure this box is checked during your data entry. There is never be a case where someone gets certified, but the IPM box is not checked.

Grow Smart Grow Safe

Our program uses the Grow Smart Grow Safe (GSGS) resource as a framework for our certification criteria. GSGS ranks the toxicity of several thousand yard and garden products, and includes important information about their effect on human health, pets and wildlife, aquatic life, and more. There are three levels of toxicity; the most toxic products are ranked “red zone”, mid-level toxins are ranked “yellow-zone”, and the least toxic products are ranked “green-zone”.

EPA-Registered Pesticides

Low Hazard

Active ingredient is low in toxicity and environmental hazard. Referenced studies used in the review indicate that products within this category contain active ingredients that pass the Thurston County review criteria.

EPA-Registered Pesticides

Moderate Hazard

May contain an ingredient persistent with a high potential to move off the site of application (water pollution hazard), or exposure to active ingredient after application approaches the EPA's level of concern, or different products with the same active ingredient have potential exposures (based on application) that range from low to highest hazard. These ingredients meet Thurston County's "conditional" ranking.

EPA-Registered Pesticides

Highest Hazard

Contains an ingredient that is known to cause a significant animal toxicity hazard (known or possible carcinogen, chemical mutagen, reproductive or developmental toxicant); exposure to the active ingredient after application is close to or exceeds the EPA's level of concern to humans, animals, or fish; is persistent with a high potential to bioaccumulate.

Encourage all participants to use Grow Smart Grow Safe to select methods and products that are less toxic: <https://growsmartgrowsafe.org/>

Also encourage participants to take the Healthy Lawn and Garden Pledge. Metro's [Pesticide-Free Zone](http://www.oregonmetro.gov/tools-living/yard-and-garden/garden-pledge) ladybug sign helps participants share their no pesticide approach with neighbors. They can take the pledge at: <http://www.oregonmetro.gov/tools-living/yard-and-garden/garden-pledge>

To protect my family, pets, wildlife, and waterways,

- *I pledge to reduce my use of pesticides, including weed and feed*
- *I pledge to stop using pesticides, including weed and feed (Get a free yard sign)*
- *I'm already pesticide-free (Get a free yard sign)*



For Backyard Habitat Certification:

- ✓ **Silver-certified yards** use only YELLOW or GREEN zone products (if necessary), according to an IPM strategy
- ✓ **Gold-certified yards** use only GREEN zone products (if necessary), according to an IPM strategy
- ✓ **Platinum-certified yards** use only GREEN zone products (if necessary), according to an IPM strategy, AND participants must have taken Metro's Healthy Land and Garden Pledge

What if people don't know the toxicity of the products they use?

If it can be done quickly (only 1-2 products), look up the toxicity together. Otherwise, assume the product(s) are more toxic than people realize. You can tell the participant something like, "For now, we'll assume that it's a red zone product. However, please feel free to look it up after I leave and let me know if you learn otherwise." Always end the conversation with the participant knowing which category was checked and why.

What if people use a professional landscaper?

In this case, you may tell the participant that their "homework" is to learn what products the landscapers use and report back to staff. Alternatively, if you want to avoid waiting for that follow-up, you can also assume that any conventional yard service is using red zone products unless they explicitly state otherwise. You can simply check "red zone" and tell the participant their certification is "on hold" until they can let staff know if they learn otherwise or switch to a "greener" service.

Don't forget to recommend our Professional Landscaper Directory as an excellent tool for selecting greener services: <https://backyardhabitats.org/resources/professionals-directory/>

Neonicotinoids

Neonicotinoids, or neonics, are a relatively new class of insecticides affecting the central nervous system of insects, resulting in paralysis and death. They include imidacloprid, acetamiprid, clothianidin, dinotefuran, nithiazine, thiacloprid, and thiamethoxam. Neonics are systemic pesticides: if they are applied to the soil or any part of the plant, the toxin will be transported throughout the plant and can persist in soil for 15 years.

Neonics are the most commonly used insecticide in the world, due to the belief that they are less toxic to mammals (humans). However, they are highly toxic to pollinators and birds and resulted in the largest mass bumblebee die-off on record, where 50,000 bees died suddenly after exposure in Wilsonville, Oregon, in June of 2013. One single seed treated with neonics can kill a song-bird.

More recently, the EPA mandated that big-box stores label plants that are treated with neonics. Sadly, the labels are heavily "greenwashed". For smaller retailers, you need to ask whether or not plants have been treated and intentionally support nurseries that do not use neonics or buy from wholesalers that do.

The Northwest Coalition for Alternative to Pesticides (NCAP) conducted a comprehensive survey of plant growers. The following nurseries do not use neonics: **Bosky Dell Natives** (West Linn, OR), **Cornell Farm** (Washington County, OR), **Dancig Oaks Nursery** (Monmouth, OR), **Doak Creek Native Plant Nursery** (Eugene, OR), **Fern Hill Nursery & Botanical Sanctuary** (Cottage Grove, OR), **Garden Fever!** (Portland, OR), **Jockey Hill Nursery** (Scappoose, OR), **Rattlesnake Plants** (Lyle, WA), **Schreiner's Iris Gardens** (Salem, OR), **Skyline Nursery** (North Plains, OR), and **Xera Plants** (Sherwood, OR).

What if your favorite nursery is not listed?

Next time you shop, ask them "Are the plants you sell treated with neonics?" Chances are, they won't know. Ask them to find out. Above all, advocate that they buy from wholesale plant providers that are listed on the NCAP website as neonic-free. It's better to ask than to buy questionably toxic plants.

4. Wildlife Stewardship

Our region provides critical habitat for more than 365 species of native fish and wildlife. Habitat loss, harmful plant and animal species, environmental contaminants, and a variety of human-made hazards can make their journey a hazardous one. The Backyard Habitat Certification Program helps participants identify and reduce wildlife hazards in their yard and develop advanced strategies to support locally-imperiled species.

Our certification criteria document provides a menu of eight wildlife stewardship actions that participants are encouraged to take in their yard. This menu of options was designed by Portland Audubon to address the most prominent hazards that are viewed in our Wildlife Care Center, such as free-roaming cats, window strikes, outdoor lighting at night, and more.

Wildlife Stewardship menu items include:

- ☐ Bird/bat nest box (appropriate for native species)
Note: Require annual cleaning
- ☐ Keep cats indoors (or in an outdoor enclosure)
- ☐ Native pollinator meadow (native forbs/grasses that bloom throughout the growing season)
- ☐ Pollinator & beneficial insect nesting habitat (brush/rock piles, bundles of stems, mason bee house)
- ☐ Snags and nurse logs (provides deadwood onsite, >5ft long)
- ☐ Reduce outdoor lighting (outdoor lights turned off during spring and fall migration)
- ☐ Reduce bird-window collisions (assess problem windows and treat to reduce strikes)
- ☐ Wildlife water feature (natural source, maintained bird/bug bat, etc.)

During the initial site assessment, our Habitat Technicians discuss these options with each participant and identify which are appropriate for their yard and goals.

For Backyard Habitat Certification:

- ✓ **Silver-certified yards** must complete at least one of the menu options listed above
- ✓ **Gold-certified yards** must complete at least two of the menu options listed above and have a concrete plan for reducing the impact of free-roaming pet cats
- ✓ **Platinum-certified yards** must complete at least three of the menu options listed above, and pet cats must be kept indoors, or in an outdoor enclosure 100% of the time

Bird Nest Boxes

As wildlife habitat dwindles in urban areas and elsewhere, it becomes harder for birds that depend on woodpecker-drilled nest cavities to find natural nesting sites. Although they are no substitute for retaining vast expanses of native habitat, artificial nest boxes can provide birds with alternatives. Since nest boxes are meant to replace natural cavities, they work best when made of natural wood and without any adornments, including perches, which would allow easy access to predators. A table of dimensions for birds common in the Pacific Northwest can be found in the Appendix.

Habitats

Like all wildlife, different birds thrive in different habitats. The table below indicates what birds can be found in various habitats.

Suburban & Urban	Coniferous Wooded Areas	Mixed Wooded Areas	Open Fields & Farmlands	Wetlands, Ponds, & Streams
Kestrel	Chestnut-backed Chickadee	American Kestrel	Kestrel	Wood Duck
Screech Owl	Red-breasted Nuthatch	Western Screech Owl	Barn Owl	Tree Swallow
Black-capped Chickadee	Downy Woodpecker	Black-capped Chickadee	Bluebird	
Violet-green Swallow		Red-breasted Nuthatch	Flicker	
Downy Woodpecker		Tree Swallow	House Wren	
Flicker		Downy Woodpecker		
Bewick's Wren		Flicker		
		Bewick's Wren		
		House Wren		

Cats Safe at Home™

The Safe at Home Campaign™ seeks to address the challenges associated with cat overpopulation in the Portland Metropolitan Area in a humane and environmentally responsible manner. Thousands of cats die in local shelters each year, and tens of thousands of stray and feral cats roam our urban landscape vulnerable to a variety of risks and preying on our native wildlife.

Solutions start at home:

Cat overpopulation in the Metro Region can be addressed, but we need people's help. Every cat deserves a home where it is loved and cared for and kept free from hazards. There is a wide range of actions individuals can take to keep their cats safe at home.

- ✓ Spay and neuter your cats
- ✓ Keep house cats indoors whenever possible
- ✓ If your current cat(s) won't adapt to indoor living, work with your next cat to adapt it to indoor life while it's still young
- ✓ Build your cats an outdoor enclosure or "catio"
- ✓ Limit outdoor time, especially during springtime when birds are nesting
- ✓ Make sure that your cat is micro-chipped so that if it does become lost, it can be returned home
- ✓ Never abandon a cat. If you are no longer able to care for your cat, contact your local shelter to find it a new home



Meadowscaping for Pollinators

A meadow is a tract of land dominated by grass and other non-woody plants, either in its natural state or used for a purpose. Urban meadows are managed groups of native prairie plants in an urban environment.

For more information about urban meadowscaping, check out West Multnomah Soil & Water District Meadowscaping Handbook:

https://wmswcd.org/wp-content/uploads/2016/04/Meadowscaping_Publication_Complete_LR.2.pdf

Common Garden Pollinators

Participants may ask what pollinators they may see in their garden. Some common examples include:

BUMBLEES		CHAP LEGGED BEES	
Yellow-faced	<i>Bombus vosnesenskii</i>	California	<i>Bombus californicus</i>
Black-tailed	<i>Bombus melanopygus</i>	MEDIUM DARK BEES	
Fuzzy horned	<i>Bombus mixtus</i>	Mining bees	<i>Andrea spp. + Melandrena spp.</i>
METALLIC HAIRY BELLY BEES		SWEAT BEES	
Mason bees	<i>Osmia spp. + Hoplitis spp.</i>	Green sweat bee	<i>Agapostemon spp.</i>
		Stripped sweat bee	<i>Halictus spp.</i>

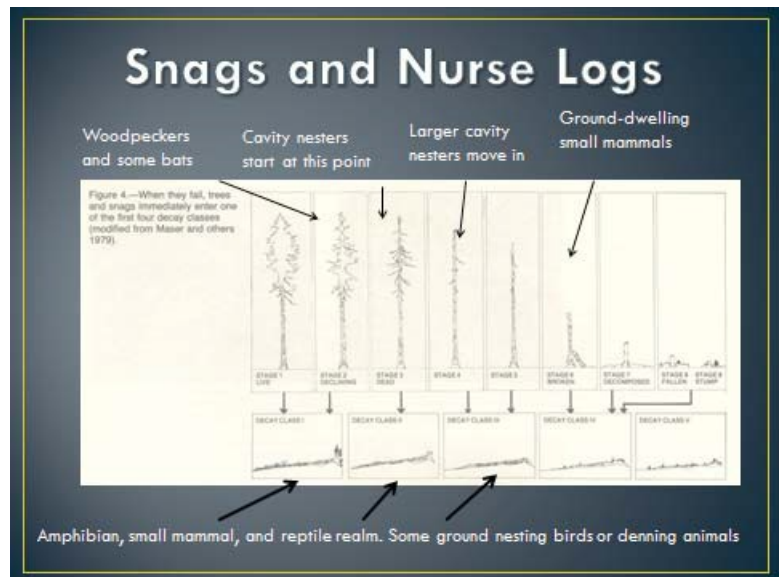
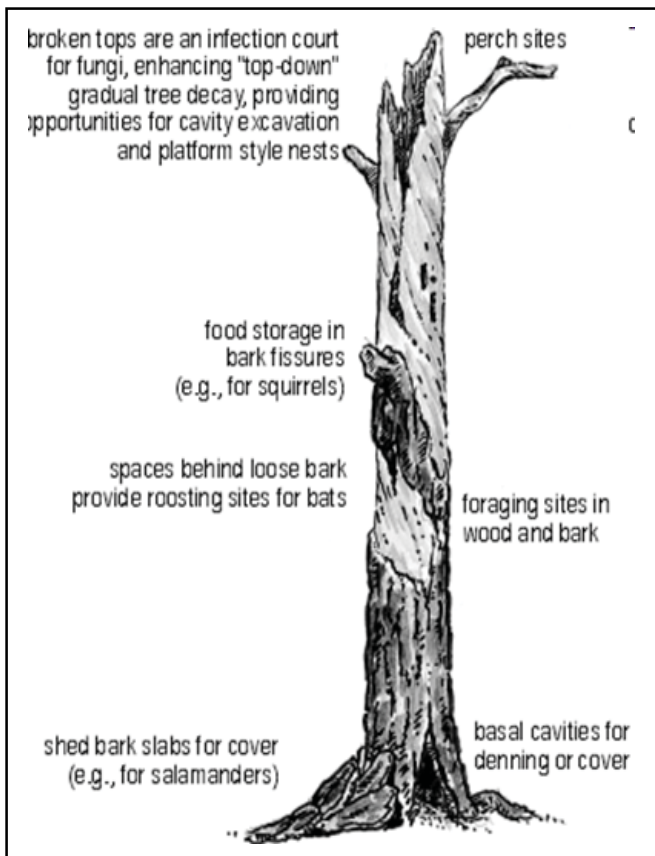
See the **Appendix** for additional resources on common pollinators.

Snags and Nurse Logs

Hard to believe, but trees can provide more habitat for wildlife dead than when they are alive.

Birds, small mammals, and other wildlife use standing dead trees (**snags**) for nests, nurseries, storage areas, foraging, roosting, and perching. Snags occurring along streams and shorelines adds important woody debris to aquatic habitat. Snags enhance local natural areas by attracting wildlife species that may not otherwise be found there.

Downed trees (**nurse logs**) provide a growth substrate that is different from the rest of the forest floor, so they increase the diversity of habitats for the new generation of trees. Sometimes this significantly increases the diversity of plant species comprising the forest.



Reduce outdoor lighting

Many birds migrate at night to minimize predation, maximize daytime foraging, and use celestial cues to guide them. Artificial lighting of cities obscures their nighttime migration guides, and can even lure birds in, where they can become entrapped by light.

Being attracted to light may result in a direct impact with a lit building or exposing birds to daytime hazards of glassy city infrastructure. Reducing unnecessary overnight lighting not only helps to minimize window strikes but also reduces ecological light pollution. An emerging field of research looks at a phenomenon that is known to impact circadian rhythms and predator-prey relationships in birds, mammals, amphibians, insects, and even humans.

Lights Out Portland is a campaign to turn off any unnecessary outdoor lighting from dusk to dawn during migration seasons: August 25 - November 15 and March 15 - June 7. Take the Pledge at bit.ly/golightsoutportland



Bird window collisions

It is estimated that between 100 million and 1 billion birds die every year in the U.S. alone due to collisions with windows. Portland Audubon's Wildlife Care Center admits hundreds of birds each year that have been injured or killed in such crashes.

Why Birds Hit Windows

Birds simply do not perceive window glass as a barrier. Depending on light conditions, they may see a reflection as a continuation of habitat, or there is zero reflection, and the window is virtually invisible. Whether tinted, transparent, or reflective, windows of all sizes and aspects can deceive birds by reflecting trees, shrubs, and sky. Most strikes occur against windows within the first 3-4 stories of a house or building. Birds may attempt to fly through an area the size of an average handprint; visual markers on the window can help minimize this, but markers should be applied every 4 inches for best results.

Tips to Prevent Window Strikes

- ✓ Position bird feeders within 3 feet, or more than 30 feet, away from windows
- ✓ Apply decals to the outside of the window. These should be applied every 4-10 inches to deter strikes reliably (Available at Audubon's Nature Store, Backyard Bird Shops, and online)
- ✓ Apply colored tape horizontally, spaced -2 inches apart, to outside of the window
- ✓ Affix screen or mesh netting several inches in front of a window to cushion the impact:
- ✓ www.birdbgone.com, www.birdscreen.com
- ✓ Apply window film to the outside of a window
- ✓ Naturescaping around windows may mask deceptive reflections
- ✓ Apply string, cord, Mylar tape, raptor silhouettes, or other moving deterrents outside of the window: www.birdsavers.com
- ✓ Turn outside lights off and close drapes during the migration seasons (August 25 - November 15 and March 15 - June 7) to minimize the luring of migrant birds into cities



5. Stormwater Management

When the rain washes over our roofs, driveways, and sidewalks, it picks up a variety of pollutants, such as pesticides, motor oil, metals, and other chemicals. This polluted stormwater eventually drains into our rivers and streams, endangering water quality and making these waterways unhealthy for people, fish, and wildlife. Helping participants identify stormwater strategies for their yards and outdoor spaces helps protect our rivers and streams.

Our certification criteria document provides a menu of 9 stormwater management actions that participants can take in their yard or outdoor space. The menu options were designed by a technical advisory committee of regional stormwater management professionals to address the highest priority concerns in our region specifically.

Stormwater Management menu items include:

- ☐ Disconnected downspouts (where appropriate)
- ☐ Eco-friendly maintenance practices (100% petroleum-free yard care, use of BHCP Landscape Professional)
- ☐ Ecoroof (according to City's specifications)
- ☐ Large canopy tree (over 30 ft and not a nuisance species)
- ☐ Naturescaped 10% higher than your certification level requirement
- ☐ Rain gardens (where appropriate; have or install to manage stormwater onsite)
- ☐ Remove impervious surfaces and/or grass (more than 500 ft)
- ☐ Restore soils (leave the leaves)
- ☐ Water conservation (eliminate lawn irrigation, water in morning and evening only)

During the initial site assessment, our Habitat Technicians discuss these options with each participant and identify which are appropriate for their yard and goals.

Disconnected Downspouts

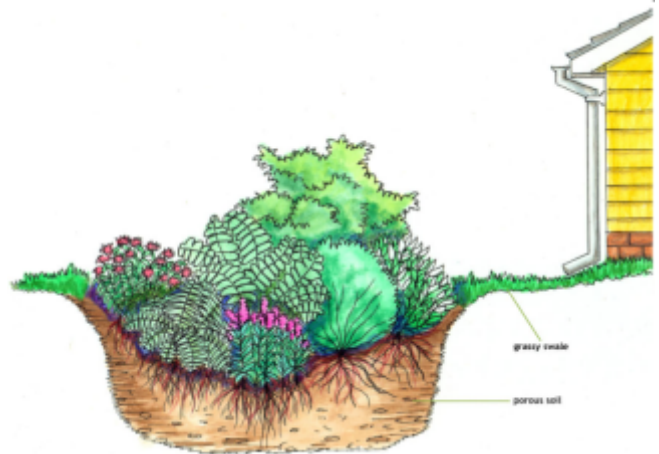
Within the stormwater management menu options, we specifically note that disconnecting downspouts is an option *where appropriate*. The reason we specify *where appropriate* is because disconnecting downspouts is not appropriate for every site or community we work in. In the site report, BHCP Technicians will note whether disconnecting downspouts is recommended. Items they take into consideration when recommending (or not recommending) this include the type and condition of the soil(s), how well water infiltrates and drains, the slope, what part of the region they work in (e.g. Washington County), etc. If a participant ever has a question about whether or not it's appropriate to disconnect their downspouts, encourage they review their site report or reach out to their local stormwater management utility.



Rain Gardens

Similar to downspout disconnections, we specifically note that installing a rain garden is a stormwater management option *where appropriate* because not all sites are appropriate for a rain garden. BHCP

Technicians will note in the site report whether installing a rain garden is recommended. Items they take into consideration include the type and condition of the soil(s), how well water infiltrates and drains, the slope, what part of the region they work in, etc. If a participant ever has a question about whether or not it's appropriate to install a rain garden, encourage them to review their site report or reach out to their local stormwater management utility. Some communities, such as Gresham, offer incentives for installing a rain garden (where appropriate).



For Backyard Habitat Certification:

- ✓ **Silver-certified yards** must complete at least one of the stormwater management menu options
- ✓ **Gold-certified yards** must complete at least two of the stormwater management menu options
- ✓ **Platinum-certified yards** must complete at least three of the stormwater management menu options

Stormwater Management Resources

- **King County:**
<https://www.kingcounty.gov/services/environment/water-and-land/stormwater/introduction/science.aspx>
- **East Multnomah Soil & Water Conservation District (EMSWCD):**
<http://emswcd.org/in-your-yard/rain-gardens/>
- **West Multnomah Soil & Water Conservation District (WMSWCD):**
<https://wmswcd.org/programs/stormwater-programs/>
- **City of Portland**
 - Stormwater Management Plants: <https://www.portlandoregon.gov/bes/45408>
 - Stormwater Stars Workshops: <http://swni.org/stormwater>
- **Oregon Environmental Council Stormwater Solutions:**
<http://www.oconline.org/wp/wp-content/uploads/2014/11/Stormwater-Solutions-Report.pdf>

Volunteering with Backyard Habitat

Many of the volunteer resources listed can also be found online at: www.backyardhabitats.org/volunteers

Volunteers are essential to Backyard Habitat! Not only do volunteers support us with your time and talents, you help make the program better, giving us invaluable feedback. We strive to make your volunteer experience meaningful and to ensure that as a volunteer you get the opportunity to continue to learn, meet new people, and put your passions to work, creating an urban environment where people and wildlife thrive together.

Volunteer Roles

- **Administer Volunteers**: help with a wide range of duties such as supporting with data entry, stuffing resource packets, writing articles, and other tasks.
- **Outreach Volunteers**: represent Backyard Habitat at outreach events and in the community
- **Certification Volunteers**: schedule and conduct follow-up certification visits at participants' sites, providing support and recommendations for participants, and recording data online afterwards. *Additional training is required to become a certification volunteer.*
- **Other Volunteers**: do you have a specific skill that might be used in support of the program? Let us know! There might be a specific volunteer role just for you!

Volunteer Skills

- ✓ Willingness to learn
- ✓ Experience with, or interest in, natural/sustainable gardening
- ✓ Knowledgeable about, or interest in learning about, native plants and noxious weeds, supporting wildlife and stormwater management
- ✓ Enjoy working with people
- ✓ Value the diverse individuals and communities that participate in the program

Volunteer Commitment

- Attend a new volunteer orientation, plus additional training sessions for certification volunteers.
- Willingness to become an official Audubon volunteer if you're not already (requires background check)
- Log your volunteer hours via Audubon's volunteer database, Better Impact
- Commit to helping us as we work to create a more equitable, diverse, and inclusive program

Benefits of being a BHCP Volunteer:

- Improve your knowledge of native plants and noxious weeds, of how to reduce pesticide use, of the basics of backyard habitat enhancement, and of sustainable stormwater management
- Join a fun movement of passionate and enthusiastic people working to create healthy, safe, and welcoming "habitats" for all people and wildlife.
- Learn more about the benefits of building habitat for wildlife and humans

Conducting a Backyard Habitat Certification Visit

As a certification volunteer, it's important to maintain strong communication with staff about the number of certification visits you're able to do. For example, let us know if you can do 3 a month or 1 every 6 weeks. If you're going out of town for 2 weeks or more, let us know so that we don't set you up on any certification visits.

Background: Steps to Certification

- The participant signs up, pays a one-time enrollment fee (offered on a sliding scale), and receives an initial site visit and follow-up site report from a Habitat Technician. Habitat Technicians are paid contractors.
- The participant has a myriad of tools and resources to support them toward certification: resource packet, site report, online resource library, quarterly e-news, Open Garden Project, Native Plant Discounts Flyer, special events, phone call and direct email follow-up, etc.
- BHCP participants notify staff when they feel ready to have a certification visit.
- Program staff (JP) locate a certification volunteer that lives nearby and is available to conduct the certification visit. The volunteer walks the site with them and determines if they've implemented the certification criteria while collecting data about the site.

Certification Visit Scheduling

- Program staff (JP) introduces the certification volunteer and BHCP participant via an "intro email".
 - The email includes their original site report and a section at the bottom of the email (for your benefit) with any extra information (ex: Call instead of email, Spanish speaker, etc).
- Once the two of you have been introduced via email, we ask that the certification volunteer (you!) follow up with the participant via phone or email within 2-3 days regarding scheduling a visit.
 - Read the site report before contacting the participant. The site report has changed over the years, so you may see several versions of it.
- Thoughtful, timely, and inclusive communication is essential. We want participants to feel supported and welcomed. We ask that you to contact the participant by email or phone within 2 days of when sent the intro email.
- When scheduling:
 - Introduce yourself and express excitement in seeing the participant's yard.
 - Offer several potential dates/times for the visit.
 - Ask for their availability.
 - A sample email is included below (which references COVID protocols).

Example scheduling email:

Hello Shaneeka,

My name is JP and I'm a volunteer with the Backyard Habitat Certification Program. I'm very excited to schedule a time to come and visit your garden and hopefully award your habitat certification. Here are some dates/times that work for me:

- *Mon, 3/20 – morning only*
- *Sat, 3/26 – anytime*

- *Tues, 3/29 – afternoon only*

Do any of those options work for you? If not, please let me know a couple of dates/times that fit your schedule.

- If the participant doesn't respond within a few days, try calling them.
 - Leave a message that references your email and encourages them to schedule with you. You may need to email them again.
- If you try contacting them 3 times, and they never respond, let JP know and he can follow up with the participant. JP would share any updates with you.

What to Bring to the Certification Visit

- ✓ Mask
- ✓ Certification determination form – mostly blank, but with these items filled out from site report:
 - *Name, address, contact info (in case you get lost or are running late)*
 - *Any noxious weeds present during the initial site visit*
 - *Plant-able area*
- ✓ Volunteer Manual (preferred) or, at a minimum, the certification criteria sheet
- ✓ Wear your BHCP volunteer badge
- ✓ Metal certified Backyard Habitat sign
- ✓ Camera, or phone with a camera

How to Conduct the Certification Determination Visit

1. Arrive at the scheduled time and place 😊
2. Knock on the door and introduce yourself as a volunteer with Backyard Habitat.
3. Invite the participant to give you a tour of their yard or outdoor space. There is no need to go inside.
4. During the visit:
 - i. **General**
Use the certification form to guide your visit. Be encouraging. Focus on the positive.
 - ii. **Noxious weeds**
Keep an eye out for noxious weeds, especially those that were listed in their site report. Indicate any weeds still present on the certification form.
 - iii. **Native plants**
Make your best estimation of the square footage of area naturescaped with native plants as well as the canopy levels present. Record this data on the form.
 - iv. **Wildlife stewardship**
Acknowledge the wildlife stewardship menu items you see as you're touring the site and record them on the form. You may need to directly ask about items that you can't see (e.g., cats) later.
 - v. **Stormwater management**
Acknowledge the stormwater management menu items you see as you're touring their space and

record them on the datasheet. You may need to ask about some of the items you can't see (e.g., maintenance habits) later.

vi. **Pesticides reduction**

This certification element requires an important conversation with the participant. The best way to open the conversation is by asking, *"Tell me about what types of yard and garden products you use."* You can follow-up by asking specific questions such as: *"What do you do to control slugs? moss? garden weeds? fungus? to maintain your lawn?"*

Based on this conversation, do your best to assess which pesticide reduction level to select. If they use products you are unsure of, you can either look them up in Grow Smart Grow Safe together or recommend that they look them up to determine their toxicity later.

vii. **Final Questions and Data Collection**

Go through the wildlife stewardship and stormwater management menu items together. Ask about and record data on the items that were not visible. Ask about and record the number of native trees, shrubs, and groundcover planted since they first began working toward certification.

Note: some people plant native plants for certification even before they enroll in the program.

5. If their site meets the criteria for certification:

- a. Present them with their new certification sign!
- b. Show them the place for the sticker. Tell them it will come in the mail in a few months.
- c. Take a nice, clear picture. Capture blooms, pets, and kids (if comfortable). Have them tilt the sign downward to avoid the sun's glare. Note: Participants signed a photo waiver when they enrolled; however, they are welcome to request to not have their photo taken.

6. If their site does not meet the criteria for certification:

- a. Recognize all the hard work they've already done and the habitat they're already providing. Highlight the big picture goals!
- b. If comfortable, let them know what is needed for reaching certification.
- c. If they have questions, encourage them to reach out to program staff.

7. End the visit clearly and positively. Be sure to congratulate the participant on their hard work and recap the most positive aspects of their yard/outdoor space. As you leave, if they were awarded certification, the participant should know precisely the certification level they achieved. Remember, you are making the determination! They should feel a strong sense of accomplishment and completion. They should not expect any additional follow-up from you or program staff.

After the Certification Determination Visit

8. Some volunteers choose to follow-up the visit with eloquent, info-packed emails. You are welcome to do this, but please avoid promising any follow-up unless you're 100% sure you will follow-through.
9. After the visit, enter the data and upload the photo online as soon as possible here:
<https://backyardhabitats.wufoo.com/forms/certification-determination-form/>

Fielding Questions from Participants during a Certification Visit

During a certification determination, participants may ask you for information that you don't know or are not prepared for. There is no expectation that you have all the answers. We're all always learning!! We only expect you to perform a positive, encouraging certification determination visit. Our program is about supporting participants to use the resources, discounts, and incentives we provide to dig in, get dirty, and eventually build the amazing habitat that gets them certified. When in doubt:

- o If you have the time/interest, look through the volunteer manual together to find the answers
- o Refer participants to the resource packet they received at their initial site visit
- o Refer them to their personalized site report
- o Refer them to our online resource library and the program's general website
- o Refer them to the Friends of Backyard Habitats Facebook group (see below)

Questions? Ask "Friends of Backyard Habitats" Facebook

A number of years ago, Backyard Habitat volunteers started a Facebook group called "Friends of Backyard Habitats" to create more community and a space for sharing information, plants, pictures, and more. The project has been a massive success and now has more than 2200+ members. Join the group and start posting questions, ideas, photos, and/or events and let the community respond. Please note: the group is not moderated by or officially affiliated with the Backyard Habitat Certification Program in any way. It is a "fan club" of enthusiastic gardeners that support each other.

Commonly Asked Questions

1. Native to where?

Our program specifically focuses on lower Willamette Valley native plants. This focus was based on several factors. One important factor is acknowledging that determining which plants are native is an issue of scale. Should we consider all plants native to the Pacific Northwest? To Oregon? To our specific eco-region? Ecologists generally believe that locally natives plants are the best suited for this climate and provide the specific resources that our regional insects and wildlife depend on. For this reason, we choose to rely on the Portland Plant List (portlandoregon.gov/citycode/article/322280) because it is the most comprehensive and dependable list currently available. The Portland Plant List contains plants that are native within 50 miles of the City of Portland.

2. What about cultivars?

Cultivars are tricky because the plant has been intentionally altered by the nursery industry to accentuate particular characteristics. Often cultivars bloom more abundantly, more brightly, for a longer period, or are more manageably shaped. But how do these changes affect the way that insects and wildlife interact with it? This question is mostly unanswered, but ecologists agree that if the bloom (color, time, shape, etc.) has been altered, so too is its relationship with insects and wildlife.

Cultivars can have an important aesthetic role in the urban landscape due to their ability to withstand intense urban conditions or fit in small spaces. Compared to an exotic plant from the other side of the planet, they may have more ecological value, but it is widely believed that this value is significantly less to that of a non-cultivated native plant.

Therefore, for our purposes, when calculating the 5%, 15%, or 50% of someone's yard or outdoor space for silver, gold, or platinum certification, we look for non-cultivated native plants. We do not discourage the use of cultivars and would never want to make a participant feel bad about planting them. For many, they can be a gateway to using native plants. We do, however, specifically recognize and emphasize the use of non-cultivated native plants.

3. What about sterile varieties of butterfly bush?

Unfortunately for all the butterfly bush lovers out there, even the “sterile” varieties of butterfly bush would need to be removed for gold-level certification. A participant can, however, be certified silver and have this shrub in their yard. The reason for this are:

- The sterile varieties are not sterile – but, rather, are approximately 2% viable. One single plant of the non-sterile variety can have millions of seed per season (about 20,000 seeds per flower cone). Therefore, 2% viable, “sterile” varieties can produce tens of thousands of seeds annually!
- There is no way to visually differentiate the “sterile” variety from the standard butterfly bush, which confuses everyone involved; staff, volunteers, future residents, etc.

4. What about bird feeders?

At Portland Audubon, the general view is that bird feeders are entirely innocuous. From a habitat perspective, they are nice but not necessary. Of course, the best way to provide for birds is to build the habitat that they depend on for food, shelter, water, and safety. As for food, birds need insects to rear young. So we need landscapes lush with insects. Providing seed only provides a narrow service for them. But, that said, there's nothing wrong with hanging feeders. They are wonderful ways for people to enjoy seeing birds. The general opinion is that we're not saving or sustaining birds with feeders, but we are creating opportunities to see them more easily and to appreciate them. And, with that appreciation, hopefully, more people will gain a more profound conservation ethic and fight for the land protections we, and the birds, really need.

5. Should I attract monarch butterflies to my Backyard Habitat?

Lots of people across the country are concerned about the plight of Monarch butterflies – and for a good reason. This species, like many others, has seen dramatic and troubling population declines in recent decades. Many people want to know what they can and should be doing in their yards to help.

Backyard Habitat looks to the Xerces Society for Invertebrate Conservation to inform our recommendations. We follow their latest research and maintain a strong relationship with their staff to help us share the best available science.

As of 2019, Xerces recommends that Portland-metro area gardeners should not encourage monarch nesting/breeding/reproduction in our gardens, yards, and outdoor spaces because we are outside of their natural breeding range. Xerces does not explicitly discourage planting milkweed since it is a valuable pollinator plant - but they think it's best to encourage the planting of milkweed only as part of a comprehensive pollinator planting plan (to benefit other pollinators) rather than as a stand-alone effort to support monarch breeding - since this latter effort would likely be in vain. In short, we'll have the opportunity to make the greatest impact on pollinator conservation by focusing our limited energy/resources on actions that will work for species that live here.

Although our region is outside the monarch's breeding range, it doesn't mean you'll never see a monarch

since they do pass through - we're simply outside the historical breeding ground. Plus, the climate is changing. This is something we'll stay in close communication with Xerces on - so that we learn if/when their position changes.

In the meantime, focus on the best things we can do for ALL pollinators; eliminate the use of pesticides and do not purchase or garden with plants that have ever been treated with neonicotinoids - if you're unsure, ASK the nursery. If they are unsure, don't buy it.

6. Native Plants and Vegetable Gardening

Many habitat gardeners also love growing food. Did you know that growing native plants in partnership with your fruit and vegetable garden helps support the pollination of those fruit and vegetables? Many native plants are also edible themselves.

The below excerpt from *Grownative.org* discusses some of the benefits of growing native plants in partnership with fruits and vegetables.

Native Plants Help Fruits and Vegetables Thrive

Did you know native companion plants facilitate pollination of fruits and vegetables?

We depend on pollinators for most of the vegetables and fruits we enjoy from farms and our own gardens. By transferring pollen among the flowers of the same species of fruits and vegetables, fertilization occurs and makes fruit and seed development possible.

■ Non-native honeybees are important pollinators of many of our food crops, but numerous species of native bees and other pollinating insects are significant as well. In fact, many native bees—of a variety sizes and shapes—are the only insects that pollinate certain species. For example, squash bees are vital for squash flower pollination.

■ Native bees need not only nectar and pollen from fruit and vegetable flowers, but also from many native flowers. You can help support native bees and other pollinators by planting a variety of native wildflowers and native flowering shrubs and trees, including ones listed here.

■ Sustaining and increasing native bee populations with native plants helps ensure there are plenty of pollinators for the fruits and vegetables you grow!



Evergreen Huckleberry

Photo credit: Mason Conservation District

APPENDIX

- I. Plant Recommendations by Condition
- II. Pollinators Often Seen in the Garden
- III. Birds Often Seen at the Feeders
- IV. Bird Nest Box Dimensions
- V. Winter Twig ID

Plant Recommendation by Condition

Full Sun

CONDITION: Full Sun ☀		
LARGE TREES (More than 30ft)		
Common Name	Scientific Name	Moisture Conditions
Grand fir	<i>Abies grandis</i>	Moist-seasonally wet
Bigleaf Maple	<i>Acer macrophyllum</i>	Moist-seasonally wet
Red Alder	<i>Alnus rubra</i>	Any moisture
Pacific Madrone	<i>Arbutus menziesii</i>	Dry
Pacific Dogwood	<i>Cornus nuttallii</i>	Moist-seasonally wet
Oregon Ash	<i>Fraxinus latifolia</i>	Moist-seasonally wet
Ponderosa Pine	<i>Pinus ponderosa</i>	Dry
Quaking Aspen	<i>Populus tremuloides</i>	Moist
Black Cottonwood	<i>Populus trichocarpa</i>	Any moisture
Douglas-fir	<i>Pseudotsuga menziesii</i>	Any moisture
Oregon Oak	<i>Quercus garryana</i>	Dry
Pacific Willow	<i>Salix lasiandra</i>	Moist-seasonally wet
Scouler's Willow	<i>Salix scouleriana</i>	Moist-seasonally wet
Pacific Yew	<i>Taxus brevifolia</i>	Moist-seasonally wet
Western Hemlock	<i>Tsuga heterophylla</i>	Moist-seasonally wet
Western Red Cedar	<i>Thuja plicata</i>	Moist-seasonally wet

CONDITION: Full Sun ☀		
SMALL TREES (Up to 30ft)		
Common Name	Scientific Name	Moisture Conditions
Vine Maple	<i>Acer circinatum</i>	Moist-seasonally wet
Black Hawthorn	<i>Crataegus suksdorfii/douglasii</i>	Any moisture
Western Crabapple	<i>Malus fusca</i>	Moist-seasonally wet
Bitter Cherry	<i>Prunus emarginata</i>	Moist-seasonally wet
Cascara	<i>Rhamnus purshiana</i>	Moist-seasonally wet
Sitka Willow	<i>Salix sitchensis</i>	Moist-seasonally wet

CONDITION: Full Sun ☀

LARGE SHRUBS (Up to 20ft)		
Common Name	Scientific Name	Moisture Conditions
Serviceberry	<i>Amelanchier alnifolia</i>	Any moisture
Hairy Manzanita	<i>Artostaphylos columbiana</i>	Dry-moist
Red-osier Dogwood	<i>Cornus stolonifera</i>	Moist-perennially wet
Hazelnut	<i>Corylus cornuta</i>	Moist
Western Wahoo	<i>Euonymus occidentalis</i>	Moist
Oceanspray	<i>Holodiscus discolor</i>	Any moisture
Black Twinberry	<i>Lonicera involucrate</i>	Moist-seasonally wet
Tall Oregon Grape	<i>Mahonia (Berberis) aquifolium</i>	Dry-moist
Osoberry (Indian Plum)	<i>Oemleria cerasiformis</i>	Dry-moist
Mock Orange	<i>Philadelphus lewisii</i>	Dry-moist
Chokecherry	<i>Prunus virginiana</i>	Any moisture
Wild Gooseberry	<i>Ribes divaricatum</i>	Moist
Blue (Stink) Currant	<i>Ribes bracteosum</i>	Moist-seasonally wet
Red-flowering Currant	<i>Ribes sanguineum</i>	Dry-moist
Nootka Rose	<i>Rosa nutkana</i>	Any moisture
Clustered/Swamp Rose	<i>Rosa pisocarpa</i>	Moist-seasonally wet
Thimbleberry	<i>Rubus parviflorus</i>	Any moisture
Columbia River Willow	<i>Salix fluviatilis</i>	Any moisture
Hooker Willow	<i>Salix hookeriana</i>	Moist-seasonally wet
Blue Elderberry	<i>Sambucus cerulean</i>	Any moisture
Red Elderberry	<i>Sambucus racemosa</i>	Moist-seasonally wet
Evergreen Huckleberry	<i>Vaccinium ovatum</i>	Dry-moist

CONDITION: Full Sun ☀

SMALL SHRUBS and FERNS (Up to 5ft)		
Common Name	Scientific Name	Moisture Conditions
Kinnickinnick	<i>Arctostaphylos uva-ursi</i>	Any moisture
Oregon Tea Tree	<i>Ceanothus sanguineus</i>	Dry
Snowbrush	<i>Ceanothus velutinus</i>	Dry-moist
Salal	<i>Gaultheria shallon</i>	Dry-moist
Chapparral Honeysuckle Vine	<i>Lonicera hispidula</i>	Dry
Cascade Oregon Grape	<i>Mahonia (Berberis) nervosa</i>	Dry-moist
Pioneer Gooseberry	<i>Ribes lobii</i>	Dry-moist
Dewberry	<i>Ribes ursinus</i>	Any moisture
Birch-leaved Spirea	<i>Spiraea betulifolia</i>	Any moisture
Western Spirea	<i>Spiraea douglasii</i>	Any moisture
Common Snowberry	<i>Symphoricarpos ablus</i>	Any moisture
Creeping Snowberry	<i>Symphoricarpos mollis</i>	Any moisture
Lady Fern	<i>Athyrium filix-femina</i>	Moist-wet
Pteridium aquilinum	<i>Bracken Fern</i>	Dry-moist

CONDITION: Full Sun ☀**HERBACEOUS LAYER – GRASSES, SEDGES, and RUSHES:**

Common Name	Scientific Name	Moisture Conditions
Dense Sedge	<i>Carex densa</i>	Wet
Dewey Sedge	<i>Carex deweyana</i>	Moist
Slough Sedge	<i>Carex obnupta</i>	Seasonally wet-submerged
Sawbeak Sedge	<i>Carex stipata</i>	Perennially wet-submerged
Tufted Hairgrass	<i>Deschampsia caespitosa</i>	Moist-perennially wet
Blue Wild Rye	<i>Elymus glaucus</i>	Dry-moist
Meadow Barley	<i>Hordeum brachyantherum</i>	Moist-seasonally wet
Baltic Rush	<i>Juncus balticus</i>	Any moisture
Common Rush	<i>Juncus effuses</i>	Any moisture
Dagger-leaved Rush	<i>Juncus ensifolius</i>	Any moisture
Spreading Blue Rush	<i>Juncus patens</i>	Moist-seasonally wet
June Grass	<i>Koeleria macrantha</i>	Dry-moist
Small-Flowered Wood Rush	<i>Luzula parviflora</i>	Dry-moist
Hard-Stem Bulrush	<i>Scirpus acutus</i>	Perennially wet-submerged
Small-Fruited Bulrush	<i>Scirpus microcarpus</i>	Perennially wet-submerged
Cattail	<i>Typha latifolia</i>	Seasonally wet-submerged

CONDITION: Full Sun ☀**HERBACEOUS LAYER – PERENNIALS, ANNUALS, BIENNIALS (forbs)**

Common Name	Scientific Name	Moisture Conditions
Common Yarrow	<i>Achillea millefolium</i>	Dry
Hooker's Onion/Taper-tip onion	<i>Allium acuminatum</i>	Dry
Nodding Onion	<i>Allium cernuum</i>	Dry
Pearly Everlasting	<i>Anaphalis margaritacea</i>	Dry
Western Red Columbine	<i>Aquilegia Formosa</i>	Dry-moist
Great Northern Aster	<i>Aster modestus</i>	Moist-seasonally wet
Douglas' Aster	<i>Aster subspicatus</i>	Moist
Tall Boykinia	<i>Boykinia major</i>	Moist-seasonally wet
Hyacinth Brodiaea	<i>Brodiaea hyacinthia</i>	Dry-moist
Tall/Great Camas	<i>Cammasia leichtlinii</i>	Seasonally wet
Common Camas	<i>Cammasia quamash</i>	Seasonally wet
Common Harebell	<i>Campanula rotundifolia</i>	Dry
Fireweed	<i>Chamerion (Epilobium) angustifolium</i>	Dry-moist
Farewell to Spring	<i>Clarkia amoena</i>	Dry
Miner's Lettuce	<i>Claytonia (Montia) perfoliata</i>	Moist-seasonally wet
Streambank Spring Beauty	<i>Claytonia (Monita) parviflora</i>	Moist
Small Blue-Eyed Mary	<i>Collinsia parviflora</i>	Any moisture
Collomia	<i>Collomia grandiflorum</i>	Dry
Upland Larkspur	<i>Delphinium nuttallianum</i>	Dry-moist
Cluster Lily	<i>Dichelostemma congestum</i>	Dry

(continued) HERBACEOUS LAYER – PERENNIALS, ANNUALS, BIENNIALS (forbs)		
Common Name	Scientific Name	Moisture Conditions
Shooting Star	<i>Dodecatheon hendersonii</i>	Dry
Oregon Sunshine	<i>Eriophyllum lanatum</i>	Dry
Fawn/Trout Lily	<i>Erythronium oreganum</i>	Dry-moist
California Poppy	<i>Eschscholzia californica</i>	Dry-moist
Woodland Strawberry	<i>Fragaria vesca</i>	Dry-moist
Wild Strawberry	<i>Fragaria virginiana</i>	Dry-moist
Checker Lily	<i>Fritillaria affinis</i>	Dry-moist
Blue Globe Gilia	<i>Gilia capitata</i>	Dry-moist
Cow Parsnip	<i>Heracleum lanatum</i>	Moist-wet
Small-flowered Alumroot	<i>Heuchera micrantha</i>	Moist
Smooth Alumroot	<i>Heuchera glabra</i>	Moist
Pacific Waterleaf	<i>Hydrophyllum tenuipes</i>	Moist
Oregon Iris	<i>Iris tenax</i>	Dry-moist
Tiger Lily	<i>Lilium columbianum</i>	Moist
Prairie Stars	<i>Lithophragma parviflorum</i>	Dry
Columbia Gorge/Broad-leaf Lupine	<i>Lupinus latifolius</i> var. <i>thompsonianus</i>	Moist
Large-leaved Lupine	<i>Lupinus polyphyllus</i>	Moist-seasonally wet
Streambank Lupine	<i>Lupinus rivularis</i>	Moist-seasonally wet
Skunk Cabbage	<i>Lysichiton americanum</i>	Moist-perennially wet
Yellow Monkeyflower	<i>Mimulus guttatus</i>	Moist-perennially wet
Grass Widow	<i>Olsynium douglasii</i>	Dry-moist
Ovate Penstemon	<i>Penstemon ovatus</i>	Dry-moist
Cut-leaved Penstemon	<i>Penstemon richardsonii</i>	Dry
Cascade Penstemon	<i>Penstemon serrulatus</i>	Moist
Coltsfoot	<i>Petasites frigidus</i> (palmatous)	Moist-seasonally wet
Sticky cinquefoil	<i>Potentilla glandulosa</i>	Dry-moist
Graceful cinquefoil	<i>Potentilla gracilis</i>	Dry-moist
Smith's Bell's	<i>Prosartes (Disporum) smithii</i>	Dry-moist
Self-heal	<i>Prunella vulgaris</i>	Moist
Wapato	<i>Sagittaria latifolia</i>	Seasonally wet-submerged
Western Saxifrage	<i>Saxifraga occidentalis</i>	Dry-moist
Oregon Saxifrage	<i>Saxifraga oreganum</i>	Moist-seasonally wet
Oregon Stonecrop	<i>Sedum oreganum</i>	Dry-moist
Broad-leaved Sedum	<i>Sedum spathulifolium</i>	Dry-moist
Willamette Valley Checkermallow	<i>Sidalcea campestris</i>	Dry-moist
Nelson's Checkermallow	<i>Sidalcea nelsoniana</i>	Dry-moist
Blue-eyed Grass	<i>Sisyrinchium bellum</i> , <i>angustifolium</i> , <i>idahoensis</i>	Moist-seasonally wet
Goldenrod	<i>Solidago canadensis</i>	Dry
Corn Lily	<i>Veratrum californicum</i>	Moist-perennially wet
Wild Hyssop	<i>Verbena hastata</i>	Moist
American Brooklime	<i>Veronica americana</i>	Seasonally-perennially wet
Early Blue Violet	<i>Viola adunca</i>	Dry-moist
Modesty	<i>Whipplea modesta</i>	Dry

Part Shade

CONDITION: Part Sun/Part Shade ▶

LARGE TREES (more than 30ft):

Common Name	Scientific Name	Moisture Conditions
Grand Fir	<i>Abies grandis</i>	Moist-seasonally wet
Bigleaf Maple	<i>Acer macrophyllum</i>	Moist-seasonally wet
Red Alder	<i>Alnus rubra</i>	Any moisture
Pacific Dogwood	<i>Cornus nuttallii</i>	Moist-seasonally wet
Oregon Ash	<i>Fraxinus latifolia</i>	Moist-seasonally wet
Quaking Aspen	<i>Populus tremuloides</i>	Moist
Black Cottonwood	<i>Populus trichocarpa</i>	Any moisture
Douglas-fir	<i>Pseudotsuga menziesii</i>	Any moisture
Pacific Willow	<i>Salix lasiandra</i>	Moist-seasonally wet
Scoulers' Willow	<i>Salix scouleriana</i>	Moist-seasonally wet
Pacific Yew	<i>Taxus brevifolia</i>	Moist-seasonally wet
Western Hemlock	<i>Tsuga heterophylla</i>	Moist-seasonally wet
Western Red Cedar	<i>Thuja plicata</i>	Moist-seasonally wet

CONDITION: Part Sun/Part Shade ▶

SMALL TREES (up to) 30ft:

Common Name	Scientific Name	Moisture Conditions
Vine Maple	<i>Acer circinatum</i>	Moist-seasonally wet
Black Hawthorn	<i>Crataegus suksdorfii/douglasii</i>	Any moisture
Western Crabapple	<i>Malus fusca</i>	Moist-seasonally wet
Cascara	<i>Rhamnus purshiana</i>	Moist-seasonally wet
Sitka Willow	<i>Salix sitchensis</i>	Moist-seasonally wet

CONDITION: Part Sun/Part Shade ▶

LARGE SHRUBS (up to 20ft):

Common Name	Scientific Name	Moisture Conditions
Serviceberry	<i>Amelanchier alnifolia</i>	Any moisture
Red-osier Dogwood	<i>Cornus stolonifera</i>	Moist-perennially wet
Hazelnut	<i>Corylus cornuta</i>	Moist
Western Wahoo	<i>Euonymus occidentalis</i>	Moist
Oceanspray	<i>Holodiscus discolor</i>	Moist
Black Twinberry	<i>Lonicera involucrate</i>	Moist-seasonally wet
Tall Oregon Grape	<i>Mahonia (Berberis) aquifolium</i>	Dry-moist
Osoberry	<i>Oemleria cerasiformia</i>	Dry-moist
Mock Orange	<i>Philadelphus lewisii</i>	Dry-moist
Pacific Ninebark	<i>Physocarpus capitatus</i>	Moist-seasonally wet
Chokecherry	<i>Prunus virginiana</i>	Any moisture
Blue Stink Currant	<i>Ribes bracteosum</i>	Moist-seasonally wet
Wild Gooseberry	<i>Ribes divaricatum</i>	Moist
Red-flowering Currant	<i>Ribes sanguineum</i>	Dry-moist

CONDITION: Part Sun/Part Shade ►**SMALL SHRUBS and FERNS (up to 5ft):**

Common Name	Scientific Name	Moisture Conditions
Oregon Tea Tree	<i>Ceanothus sanguineus</i>	Dry
Salal	<i>Gaultheria shallon</i>	Dry-moist
Cascade Oregon Grape	<i>Mahonia (Berberis) nervosa</i>	Dry-moist
Pioneer Gooseberry	<i>Ribes lobii</i>	Dry-moist
Baldhip Rose	<i>Rosa gymnocarpa</i>	Any moisture
Dewberry	<i>Rubus ursinus</i>	Any moisture
Birch-leaved Spirea	<i>Spiraea betulifolia</i>	Any moisture
Western Spirea	<i>Spiraea douglasii</i>	Any moisture
Common Snowberry	<i>Symphoricarpos albus</i>	Any moisture
Creeping Snowberry	<i>Symphoricarpos mollis</i>	Any moisture
Chaparral Honeysuckle VINE	<i>Lonicera hispidula</i>	Dry
Orange Honeysuckle VINE	<i>Lonicera ciliosa</i>	Moist
Maidenhair Fern	<i>Adiantum pedatum (aleuticum)</i>	Moist
Lady Fern	<i>Athyrium filix-femina</i>	Moist-seasonally wet
Deer Fern	<i>Blechnum spicant</i>	Moist-seasonally wet
Wood Fern	<i>Dryopteris austriaca (expansa)</i>	Moist-seasonally wet
Oak Fern	<i>Gymnocarpium dryopteris</i>	Moist
Licorice Fern	<i>Polypodium glycyrrhiza</i>	Moist-wet
Sword Fern	<i>Polystichum munitum</i>	Dry-moist
Bracken Fern	<i>Pteridium aquilinum</i>	Dry-moist

CONDITION: Part Sun/Part Shade ►**HERBACEOUS LAYER - GRASSES, SEDGES, and RUSHES:**

Common Name	Scientific Name	Moisture Conditions
Dewey Sedge	<i>Carex deweyana</i>	Moist
Slough Sedge	<i>Carex obnupta</i>	Seasonally wet-submerged
Sawbeak Sedge	<i>Carex stipata</i>	Perennially wet-submerged
Blue Wild Rye	<i>Elymus glaucus</i>	Dry-moist
Spreading Blue Rush	<i>Juncus patens</i>	Moist-seasonally wet
Small-Flowered Wood Rush	<i>Luzula parviflora</i>	Dry-moist
Hard-Stem Bulrush	<i>Scirpus acutus</i>	Perennially wet-submerged
Small-Fruited Bulrush	<i>Scirpus microcarpus</i>	Perennially wet-submerged
Cattail	<i>Typha latifolia</i>	Seasonally wet-submerged

CONDITION: Part Sun/Part Shade ►

HERBACEOUS LAYER PERENNIALS, ANNUALS, BIENNIALS (forbs)

Common Name	Scientific Name	Moisture Conditions
Vanilla Leaf	<i>Achlys triphylla</i>	Moist
Columbian Windflower	<i>Anemone deltoidea</i>	Moist
Western Red Columbine	<i>Aquilegia formosa</i>	Dry-moist
Wild Ginger	<i>Asarum caudatum</i>	Moist
Great Northern Aster	<i>Aster modestus</i>	Moist-seasonally wet
Tall Boykinia	<i>Boykinia major</i>	Moist-seasonally wet
Calypso Orchid	<i>Calypso bulbosa</i>	Moist
Tall/Great Camas	<i>Cammasia leichtlinii</i>	Seasonally wet
Common Camas	<i>Cammasia quamash</i>	Seasonally wet
Miner's Lettuce	<i>Claytonia (Montia) perfoliata</i>	Moist-seasonally wet
Streambank Spring Beauty	<i>Claytonia (Montia) parviflora</i>	Moist
Bunchberry	<i>Cornus unalaschkensis (Canadensis)</i>	Moist
Scoulers' Corydalis	<i>Corydalis scouleri</i>	Moist
Menzie's Larkspur	<i>Delphinium menziesii</i>	Moist
Upland Larkspur	<i>Delphinium nuttallianum</i>	Dry-moist
Pacific Bleeding Heart	<i>Dicentra Formosa</i>	Moist
Shooting Star	<i>Dodecatheon hendersonii</i>	Dry
Shooting Star	<i>Dodecatheon pulchellum</i>	moist
Fawn/Trout Lily	<i>Erythronium oreganum</i>	Dry-moist
Woodland Strawberry	<i>Fragaria vesca</i>	Dry-moist
Wild Strawberry	<i>Fragaria virginiana</i>	Dry-moist
Checker Lily	<i>Fritillaria affinis-</i>	Dry-moist
Rattlesnake Plantain	<i>Goodyeara oblongifolia</i>	Dry-moist
Cow Parsnip	<i>Heracleum lanatum</i>	Moist-wet

CONDITION: Part Sun/Part Shade ▶

(continued) HERBACEOUS LAYER PERENNIALS, ANNUALS, BIENNIALS (forbs)

Common Name	Scientific Name	Moisture Conditions
Small-flowered Alumroot	<i>Heuchera micrantha</i>	Moist
Smooth Alumroot	<i>Heuchera glabra</i>	Moist
Pacific Waterleaf	<i>Hydrophyllum tenuipes</i>	Moist
Oregon Iris	<i>Iris tenax</i>	Dry-moist
Tiger Lily	<i>Lilium columbianum</i>	Moist
Twinflower	<i>Linnaea borealis</i>	Dry-moist
Prairie Stars	<i>Lithophragma parviflorum</i>	Dry
Columbia Gorge/Broad-leaf Lupine	<i>Lupinus latifolius</i> var. <i>thompsonianus</i>	Moist
Large-Leaved Lupine	<i>Lupinus polyphyllus</i>	Moist-seasonally wet
Streambank Lupine	<i>Lupinus rivularis</i>	Moist-seasonally wet
Skunk Cabbage	<i>Lysichiton americanum</i>	Moist-seasonally wet
False Lily of the Valley	<i>Maianthemum dilatatum</i>	Moist-seasonally wet
Bluebells	<i>Mertensia platyphylla</i>	Moist-seasonally wet
Yellow Monkeyflower	<i>Mimulus guttatus</i>	Moist-seasonally wet
Musk-flower	<i>Mimulus moschatus</i>	Moist-seasonally wet
Creeping Mitella	<i>Mitella caulescens</i>	Moist-seasonally wet
Turtleshead	<i>Nothochelone nemerosa</i>	Dry-moist
Devil's Club	<i>Oplopanax horridus</i>	Moist-seasonally wet
Redwood Sorrel	<i>Oxalis oregana</i>	Moist
Trillium-leaved Oxalis	<i>Oxalis trillifolia</i>	Moist
Grass Widow	<i>Olsynium douglasii</i>	Dry-moist
Ovate Penstemon	<i>Penstemon ovatus</i>	Dry-moist
Cut-leaved Penstemon	<i>Penstemon richardsonii</i>	Dry
Cascade Penstemon	<i>Penstemon serrulatus</i>	Moist
Coltsfoot	<i>Petasites frigidus palmatus</i>	Moist-seasonally wet
Sticky cinquefoil	<i>Potentilla glandulosa</i>	Dry-moist
Graceful Cinquefoil	<i>Potentilla gracilis</i>	Dry-moist
Hooker's Bells	<i>Prosartes Disporumhookeri</i>	Dry-moist
Smith's Bell's	<i>Prosartes (Disporum) smithii</i>	Dry-moist
Self-heal	<i>Prunella vulgaris</i>	Moist
Wapato	<i>Sagittaria latifolia</i>	Seasonally wet-submerged
Yerba Buena	<i>Satureja douglasii</i>	Dry-moist
Western Saxifrage	<i>Saxifraga occidentalis</i>	Dry-moist
Oregon Saxifrage	<i>Saxifraga oregana</i>	Moist-seasonally wet
Oregon Stonecrop	<i>Sedum oreganum</i>	Dry-moist
Broad-leaved Sedum	<i>Sedum spathulifolium</i>	Dry-moist
Willamette Valley Checkermallow	<i>Sidalcea campestris</i>	Dry-moist
Blue-eyed Grass	<i>Sisyrinchium bellum angustipolium</i> , <i>idahoensi</i>	Moist-seasonally wet
False Solomon Seal	<i>Smilacina (Maianthemum) racemosa</i>	Moist

CONDITION: Part Sun/Part Shade ▶		
(continued) HERBACEOUS LAYER PERENNIALS, ANNUALS, BIENNIALS (forbs)		
Common Name	Scientific Name	Moisture Conditions
Star-Flowered Solomon Seal	<i>Smilacina (Maianthemum) stellata</i>	Moist
Twisted Stalk	<i>Streptopus amplexifolius</i>	Moist
Spring Queen	<i>Synthesis reniformis</i>	Moist
Fringe cup	<i>Tellima grandiflora</i>	Dry-moist
Western Meadow Rue	<i>Thalictrum occidentale</i>	Moist
Foam Flower	<i>Tiarella trifoliata</i>	Moist
Piggy-back Plant	<i>Tolmiea menziesii</i>	Moist
Western Starflower	<i>Trientalis latifolia</i>	Dry-moist
Sessile Trillium	<i>Trillium chloropetalum</i>	Moist
Western Trillium	<i>Trillium ovatum</i>	Moist
Inside-Out Flower	<i>Vancouveria hexandra</i>	Dry-moist
Corn Lily	<i>Veratrum californicum</i>	Moist-perennially wet
Early Blue Violet	<i>Viola adunca</i>	Dry-moist
Yellow Stream Violet	<i>Viola glabella</i>	Moist
Evergreen Violet	<i>Viola sempervirens</i>	Moist-seasonally wet
Modesty	<i>Whipplea modesta</i>	Dry

Full Shade

CONDITION: Full Shade ●		
LARGE TREES (more than 30ft)		
Common Name	Scientific Name	Moisture Conditions
Grand Fir	<i>Abies grandis</i>	Moist-seasonally wet
Pacific Dogwood	<i>Cornus nuttallii</i>	Moist-seasonally wet
Pacific Yew	<i>Taxus brevifolia</i>	Moist-seasonally wet
Western Hemlock	<i>Tsuga heterophylla</i>	Moist-seasonally wet

CONDITION: Full Shade ●		
SMALL TREES (up to 30ft)		
Common Name	Scientific Name	Moisture Conditions
Vine Maple	<i>Acer circinatum</i>	Moist-seasonally wet
Black Hawthorn	<i>Crataegus suksdorfii/douglasii</i>	Any moisture
Cascara	<i>Rhamnus purshiana</i>	Moist-seasonally wet

CONDITION: Full Shade ●		
LARGE SHRUBS (up to 20ft)		
Common Name	Common Name	Common Name
Hazelnut	<i>Corylus cornuta</i>	Moist
Western Wahoo	<i>Euonymus occidentalis</i>	Moist
Oceanspray	<i>Holodiscus discolor</i>	Any moisture
Osoberry	<i>Oemleria cerasiformis</i>	Dry-moist
Mock Orange	<i>Philadelphus lewisii</i>	Dry-moist
Thimbleberry	<i>Rubus parviflorus</i>	Any moisture
Salmonberry	<i>Rubus spectabilis</i>	Moist
Red Elderberry	<i>Sambucus racemosa</i>	Moist-seasonally wet
Evergreen Huckleberry	<i>Vaccinium ovatum</i>	Dry-moist
Red Huckleberry	<i>Vaccinium parvifolium</i>	Dry-moist
Oval-leaved Viburnum	<i>Viburnum ellipticum</i>	Dry-moist

CONDITION: Full Shade ●		
SMALL SHRUBS and FERNS (up to 5ft)		
Common Name	Common Name	Common Name
Salal	<i>Gaultheria shallon</i>	Dry-moist
Cascade Oregon Grape	<i>Mahonia (Berberis) nervosa</i>	Dry-moist
Badhip Rose	<i>Rosa gymnocarpa</i>	Any moisture
Dewberry	<i>Rubus ursinus</i>	Any moisture
Common Snowberry	<i>Symphoricarpos albus</i>	Any moisture
Creeping Snowberry	<i>Symphoricarpos mollis</i>	Any moisture
Orange Honeysuckle VINE	<i>Lonicera ciliosa</i>	Moist
Maidenhair Fern	<i>Adiantum pedatum</i>	Moist
Lady Fern	<i>Athyrium filix-femina</i>	Moist-seasonally wet
Deer Fern	<i>Blechnum spicant</i>	Moist-seasonally wet
Wood Fern	<i>Dryopteris austriaca expansa</i>	Moist-seasonally wet
Oak Fern	<i>Gymnocarpium dryopteris</i>	Moist
Licorice Fern	<i>Polypodium glycyrrhiza</i>	Moist-seasonally wet
Sword Fern	<i>Polystichum munitum</i>	Dry-moist
Bracken Fern	<i>Pteridium aquilinum</i>	Dry-moist

CONDITION: Full Shade ●		
HERBACEOUS LAYER - PERENNIALS, ANNUALS, BIENNIALS (forbs):		
Common Name	Common Name	Common Name
Baneberry	<i>Actaea rubra</i>	Moist
Columbian Windflower	<i>Anemone deltoidea</i>	Moist
Wild Ginger	<i>Asarum caudatum</i>	Moist
Tall Boykinia	<i>Boykinia major</i>	Moist-seasonally wet
Calypso Orchid	<i>Calypso bulbosa</i>	Moist
Angled Bitter-cress	<i>Cardamine angulate</i>	Moist
Enchanter's Nightshade	<i>Circaea alpine</i>	Moist









CONDITION: Full Shade ●

(continued) HERBACEOUS LAYER - PERENNIALS, ANNUALS, BIENNIALS (forbs):

Common Name	Common Name	Common Name
Miner's Lettuce	<i>Claytonia (Montia) perfoliata</i>	Moist-seasonally wet
Candyflower	<i>Claytonia (Montia) sibirica</i>	Moist
Bunchberry	<i>Cornus unalaschkensis canadensis)</i>	Moist
Scouler's Corydalis	<i>Corydalis scouleri</i>	Moist
Menzie's Larkspur	<i>Delphinium menziesii</i>	Moist
Pacific Bleeding Heart	<i>Dicentra Formosa</i>	Moist
Shooting Star	<i>Dodecatheon pulchellum</i>	Moist
Rattlesnake Plantain	<i>Goodyeara oblongifolia</i>	Dry-moist
Cow Parsnip	<i>Heracleum lanatum</i>	Moist-wet
Smooth Alumroot	<i>Heuchera glabra</i>	Moist
Pacific Waterleaf	<i>Hydrophyllum tenuipes</i>	Moist
Twinflower	<i>Linnaea borealis</i>	Dry-moist
Skunk Cabbage	<i>Lysichiton americanum</i>	Moist-perennially wet
False Lily of the Valley	<i>Maianthemum dilatatum</i>	Moist-seasonally wet
Bluebells	<i>Mertensia platyphylla</i>	Moist-seasonally wet
Musk-flower	<i>Mimulus moschatus</i>	Moist-seasonally wet
Creeping Mitella	<i>Mitella caulescens</i>	Moist-seasonally wet
Turtlehead	<i>Nothochelone nemorosa</i>	Dry-moist
Devil's Club	<i>plopanax horridus</i>	Moist-seasonally wet
Redwood Sorrel	<i>Oxalis oregana</i>	Moist
Trillium-leaved Oxalis	<i>Oxalis trillifolia</i>	Moist
Coltsfoot	<i>Petasites frigidus (palmatus)</i>	Moist-seasonally wet
Hooker's Bells	<i>Prosartes (Disporum) hookeri</i>	Dry-moist
Smith's Bells	<i>Prosartes (Disporum) smithii</i>	Dry-moist
False Solomon Seal	<i>Smilacina (Maianthemum) racemosa</i>	Moist
Star-Flowered Solomon Seal	<i>Smilacina (Maianthemum) stellata</i>	Moist
Twisted Stalk	<i>Streptopus amplexifolius</i>	Moist
Fringecup	<i>Tellima grandiflora</i>	Dry-moist
Western Meadow Rue	<i>Thalictrum occidentale</i>	Moist
Foam Flower	<i>Tiarella trifoliata</i>	Moist
Foam Flower	<i>Tiarella trifoliata</i> var. <i>unifoliata</i>	Dry-moist
Piggy-back Plant	<i>Tolmiea menziesii</i>	Moist
Western Starflower	<i>Trientalis latifolia</i>	Dry-moist
Sessile Trillium	<i>Trillium chloropetalum</i>	Moist
Western Trillium	<i>Trillium ovatum</i>	Moist
Inside-Out Flower	<i>Vancouveria hexandra</i>	Dry-moist
Early Blue Violet	<i>Viola adunca</i>	Dry-moist
Yellow Stream Violet	<i>Viola glabella</i>	Moist
Evergreen Violet	<i>Viola sempervirens</i>	Moist-seasonally wet

Pollinators Often Seen in the Garden







Program participants may ask what pollinators they may see in their garden. Here are some examples:

BUMBLEES		MEDIUM DARK BEES	
<i>Bombus vosnesenskii</i> (yellow faced)		<i>Andrena spp. + Melandrena spp.</i> (mining bees)	
<i>Bombus melanopygus</i> (blacktailed)		SWEAT BEES	
		<i>Agapostemon spp.</i> (green sweat bee)	
<i>Bombus mixtus</i> (fuzzy horned)		<i>Halictus spp.</i> (stripped sweat bee)	
CHAP LEGGED BEES		METALLIC HAIRY BELLY BEES	
<i>Bombus californica</i> (California)		<i>Osmia spp. + Hoplitis spp.</i> (mason bees)	




Birds Often Seen at the Feeders

Program participants may ask what birds they may see visiting their feeders. Here is a list of common visitors.

(All of the pictures were provided by Jim Cruce. Others—marked with an asterisk--were found on-line)

Northern Flicker <i>(Colaptes auratus)</i>		<ul style="list-style-type: none"> • Large brown woodpecker • Barred back, spotted belly, black bib • Male has a red mustache • Underwings and tail show flash of orange-red in flight along with white rump patch • Often seen foraging for ants on the ground
Pileated Woodpecker <i>(Dryocopus pileatus)</i>		<ul style="list-style-type: none"> • Our largest crow-sized woodpecker • Flaming red crest, black body, white on face and neck • Shows flash of white under the wings • Uses its powerful bill to search for carpenter ants on logs or snags where it makes large oval or rectangular holes.
*Downy Woodpecker <i>(Picoides pubescens)</i>		<ul style="list-style-type: none"> • Our smallest woodpecker • Black and white with a relatively short bill • Black bars on white outer tail feathers • Male has a red patch on the back of the head • Found in mixed forests, can be on twigs and stems foraging for bugs
*Hairy Woodpecker <i>(Picoides villosus)</i>		<ul style="list-style-type: none"> • Looks like a larger version of the Downy Woodpecker • Black and white but with a much longer bill • Lacks black bars on white tail feathers • Male has a red patch on the back of the head • Found in mature forests on tree trunks or limbs; never on twigs or stems like Downy Woodpeckers
*Steller's Jay <i>(Cyanocitta stelleri)</i>		<ul style="list-style-type: none"> • Striking bird with bright blue belly, rump, and tail • Has contrasting gray-black head, back, and breast • Long Mohawk-like crest on the head • Noisy, intelligent bird often found in flocks of 10 or more
*Anna's Hummingbird <i>(Calypte anna)</i>		<ul style="list-style-type: none"> • Our only year-round hummingbird • Male has iridescent crown and throat which can appear black due to lighting • Has bright green back, grayish-green belly • Female lacks red crown, has a red central patch on the throat

<p>*Black-capped Chickadee (<i>Poecile atricapilla</i>)</p> 	<ul style="list-style-type: none"> • Blackcap and throat with white cheek, gray back, and buffy flanks • Short, stubby bill • Wooded habitat, often found in mixed flocks and is attracted to feeders
<p>*Chestnut-backed Chickadee (<i>Poecile rufescens</i>)</p> 	<ul style="list-style-type: none"> • Our smallest chickadee • Distinguished from Black-capped Chickadee by its dark reddish-brown back, sides, and flanks • Lighter belly than Black-capped Chickadee • Found in moist woods and Douglas Firs
<p>Red-breasted Nuthatch (<i>Sitta candensis</i>)</p> 	<ul style="list-style-type: none"> • Male: Dark crown, dark eye-line, white eyebrow, blue-gray back, and wings; the belly is rusty orange, not red • Female: Paler version • The tail is short and squared • Like all nuthatches, it goes down a tree headfirst, using one foot to brace itself and the other to hold onto the bark
<p>*Bushtit (<i>Psaltirparus minimus</i>)</p> 	<ul style="list-style-type: none"> • Round body, gray-brown color • Short bill and long, thin tail • A tiny bird that travels in flocks of up to 40 • Always on the go; flocks come into a yard like a swarm of bees and move on quickly
<p>*Varied Thrush (<i>Ixoreus naevius</i>)</p> 	<ul style="list-style-type: none"> • Our most beautifully colored thrush • Orange throat and eyebrow, dark breast band, blue-gray back, and intricately patterned wings • Female is a paler version of the male • Often seen feeding on the ground like American Robins
<p>*Pacific Wren (<i>Troglodytes pacificus</i>)</p> 	<ul style="list-style-type: none"> • Our smallest wren • Dark brown with short pale eyebrow, barred flanks, and very short barred tail which is almost always raised • Seen on ground climbing over fallen logs and stumps • Belts out one of the longest, most melodious songs heard in the woods
<p>*Spotted towhee (<i>Pipilo maculates</i>)</p> 	<ul style="list-style-type: none"> • Fiery red eyes with black bill, head, and throat • White belly, rufous sides, white spots on wings and white corners on a long, black tail • Female is a paler version of the male • Usually found on the ground scratching in leaf litter

*Black-headed Grosbeak <i>(Pheucticus melanocephalus)</i> 	<ul style="list-style-type: none"> • Male: Heavy dark bill, black eyes, and face, orange chest and collar, yellow belly. White streaks on the black back with white wing bars • Female: Largely brown with buffy streaking on sides of breast, head patterned with light stripes and dark ear patch. Lighter bill than male • Breeds in Oregon, arriving in early May
*Dark-Eyed Junco <i>(Junco hyemalis)</i> 	<ul style="list-style-type: none"> • Very light bill, dark eyes, black hood, brown back, and sides, light belly • White outer tail feathers flash conspicuously in flight • Female is a paler version of the male
*Song Sparrow <i>(Melospiza melodia)</i> 	<ul style="list-style-type: none"> • A dark bird that is mostly brown and gray with coarse streaks on back • Streaks on chest usually converge in a central spot • Head also has gray and brown markings • White throat, rufous tinged wings, and tail which is rounded and pumped in flight • Common and widespread

Bird Nest Box Dimensions

<i>Species</i>	<i>Floor of Cavity</i>	<i>Depth of Cavity</i>	<i>Entrance above Floor</i>	<i>Size of Entrance</i>	<i>Height above Ground</i>
Birds of Prey					
American Kestrel	8" x 8"	15" - 18"	12" - 18"	4"	10' - 30'
Common Barn Owl	10" x 18"	20" - 24"	4"	5"	12' - 18'
Western Screech Owl	8" x 8"	15" - 18"	12" - 14"	3"	10' - 30'
Bluebirds					
Western	5" x 5"	8"	6"	1 1/2"	5' - 10'
Chickadees					
Black-capped	4" x 4"	8" - 10"	6" - 8"	1 1/4"	8' - 10'
Chestnut-backed	4" x 4"	8" - 10"	6" - 7"	1 1/4" - 1 1/2"	8' - 10'
Ducks					
Wood Duck	8" x 10"	24"	16"	4"	15'
Nuthatches					
Red-breasted	4" x 4"	8" - 10"	6" - 8"	1 1/4"	12' - 20'
Swallows					
Tree	5" x 5"	6"	1" - 5"	1 1/2"	10' - 15'
Violet-green	6" x 10"	6"	4"	2 1/4" w x 7/8" h	10' - 15'
Woodpeckers					
Downy	4" x 4"	8" - 10"	6" - 8"	1 1/4"	6' - 20'
Northern Flicker	7" x 7"	16" - 18"	14" - 16"	2 1/2"	6' - 10'
Wrens					
Bewick's	4" x 4"	6" - 8"	1" - 6"	1 1/4" - 1 1/2"	6' - 10'
House	4" x 4"	6" - 8"	1" - 6"	1" - 1 1/2"	6' - 10'

Winter Twig ID

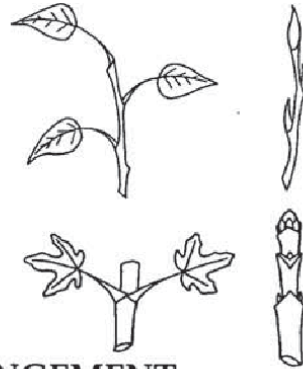
Here's your basic twig:

terminal bud

lateral buds
(stalked)

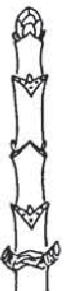
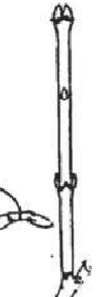

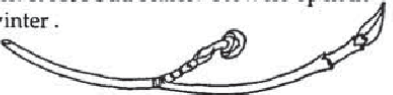

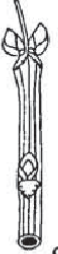


leaf scars

First, look at the twig. If the way the leaves come off the twig look like this, your plant has alternate leaf arrangement. **TURN THIS CARD OVER!**















If your twig looks more like this, **LOOK BELOW ON THIS SIDE!**

OPPOSITE ARRANGEMENT

 <p>Twigs stout, dark red (maroon) to green and shiny. Terminal bud big, maroon, shaped like a crown. Lateral buds tiny. Leaf scars are V-shaped, joined around stem. Fruit is double winged and stays on in winter.</p> <p>Big Leaf Maple <i>Acer macrophyllum</i></p>	 <p>Arching branches. Bark gray smooth. Twigs deep glossy red in open or green in shade. Buds 1/8" shiny red with hairs. Terminal bud is a pair of buds that look like a deer hoof.</p> <p>Vine Maple <i>Acer cirinatum</i></p>	 <p>Twigs deep green at tips and gray below, flattened at nodes. Terminal bud small, cone-shaped. Lateral buds tiny, covered in part by a thin layer. Leaf scars are opposite to a bit offset.</p> <p>Oregon Ash <i>Fraxilis latifolia</i></p>
<p>Bark smooth, limbs branched in fours or fives. Twigs curved, dusty red-brown to green. Buds long, narrow, pointed with two pair of velvet rose bud scales. Flowers open in winter.</p>  <p>Flowering Dogwood <i>Cornus nuttallii</i></p>	 <p>Bark thin, red-brown, smooth. Twigs thin, shiny, red (green in shade), flattened below nodes. Buds thin, pointed, red. Terminal bud has two lateral buds below.</p> <p>Creek Dogwood <i>Cornus stolonifera</i></p>	 <p>Bark gray, smooth. Corky pores in bark. Twigs silvery, stout, 8-sided. Buds large, globular, light green. Area between leaf groups is called "internode." Internode can be 8" long. Plant often dies to last internode.</p> <p>Red Elderberry <i>Sambucus callicarpa</i></p>
 <p>Twigs thin, dull brown. Buds tiny, usually no terminal bud. Bark thin, gray. Leaf scars triangular. Fruit is white, waxy berries.</p> <p>Snowberry <i>Symphoricarpos albus</i></p>	 <p>Woody, climbing vine. Thin twigs, light brown. Leaf stalks stay on in winter. Old vines hang from trees. Fuzzy, white seeds in fall/winter.</p> <p>Clematis <i>Clematis lingustifolia</i></p>	<p>This field key was adapted from "Winter Twigs-Tryon Creek State Park" by Jean Siddall. Parts were copied with permission. To purchase the book, contact Tryon Creek State Park.</p>

ALTERNATE ARRANGEMENT

 <p>Twigs lustrous, green-brown. Corky pores in bark are orange. Buds sticky and fragrant. Large terminal buds. Lateral buds pointed, dark brown. Twigs have bumpy look.</p> <p>Black Cottonwood <i>Populus trichocarpa</i></p>	 <p>Twigs red-brown, shiny. Ridged below leaf scars. Buds stalked, dark red, blunt, canoe-shaped. Three bud scales. Catkins at end of branches. Fruit is a cone.</p> <p>Red Alder <i>Alnus Rubra</i></p>	 <p>They are the only twig with a single, hood-shaped bud scale.</p> <p>Leaf scars are moon shaped (crescent).</p> <p>Willow <i>Salix sp. (sp.= many species)</i></p>
 <p>Bark gray, smooth. Twigs brown to red with stout thorns! Buds small, round, red, shiny. Flower buds bigger than leaf buds.</p> <p>Black Hawthorn <i>Crataegus douglasii</i></p>	 <p>Bark gray, smooth. Twigs dusty yellow brown, velvety towards end. Buds naked, exposed leaves have rusty hairiness. Lateral buds small, get stalks as they grow.</p> <p>Cascara <i>Rhamus purshiana</i></p>	 <p>Bark gray, smooth. Twigs thin, zig-zag, gray-brown. New growth is fuzzy. Buds round, fuzzy. No terminal bud. Catkins along twig. Fruit is a nut.</p> <p>Western Hazel (Wild Filbert) <i>Corylus cornuta</i></p>
 <p>Bark dull, gray-brown. Plumes of dry flowers. "String" beneath bark, which pulls off like a string bean. Buds 1/4" long. Terminal bud larger than lateral buds. Outer bud scales short and fall off. Inner bud scales tan and hairy.</p> <p>Oceanspray <i>Holodiscus discolor</i></p>	 <p>Bark smooth, light gray. Stems arching. Twigs greenish gray. Twigs stinky! Buds rosy-red. Terminal buds have leaf and flower parts. Scales have short, white hairs. Leaf scars moon-shaped.</p> <p>Indian Plum (Osoberry) <i>Oemleria cerasiformis</i></p>	 <p>Bark thin, orange-brown. Bark shredding or peeling. Buds twisted, about 3/8" long. Bud scales stay on and open. Bud scales have ragged edges. Leaf scars stick out and are moon shaped (crescent).</p> <p>Ninebark <i>Physocarpus capitatus</i></p>
 <p>Bark orange brown, thin, shiny and peeling. Some twigs have short prickles that break off. Twigs orange-brown. Twigs may be fuzzy near tip. Buds small, found in Y between stem and shriveled leaf stalk</p> <p>Salmonberry <i>Rubis spectabilis</i></p>	 <p>Twigs brown to orange-brown. Twigs dull, with a tiny bit of hairiness. No thorns! Buds 1/4 inch long. Buds found in upper angle between leaf scars and stem. Bud scales papery, with ragged look.</p> <p>Thimbleberry <i>Rubus parviflorus</i></p>	 <p>Many needle-like prickles. Leaf scars form a LINE, halfway around the stem. Bark dark red to green. Buds are greenish to rose color. Buds small. Fruit is a red rose "hip." Fruit is present in winter.</p> <p>Wild Rose <i>Rosa sp. (there are several species)</i></p>