

2026 LANCASTER COUNTY JUNIOR ENVIROTHON

BACKYARD HABITATS & CONSERVATION

1. BEE BLOCK – Bee blocks are just one type of habitat for bees. Bee blocks provide shelter for mason bees. Also known as bee hotels, a bee block is made of tubes similar to stems for bees. Mason bees are important pollinators for orchards and farms. Their habitat requires nesting in wood and sealing their nest with mud. Mason bees also nest in tubes or tunnels. As long as the nesting tube, or tunnel is close to a food source and mud for holes, the mason bee is ready to move into a bee hotel.



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Make the bee block is parallel to the ground and mount the block to a post 4-6 feet above the ground. The bee block should face south to have full sun on it. Bee block should have no obstruction in front of it blocking entrances. Mason bees are cold blooded and need the sun's heat to stay warm; the direction of the bee block is important. The bee hotel should be fixed above the ground and not hang from a branch where it could swing or sway. If birds are attracted to the mud tunnels to feed on bee larvae, attach a piece of chicken wire across the front of the bee block to prevent predation. Source: www.savebees.org



2. RAIN GARDEN – A rain garden is a landscaped area planted with flowers, shrubs, and grasses that soak up rain water that runs off hard surfaces such as a roof, road, sidewalk, or parking area. The rain garden fills with water during a rain storm and the water slowly filters into the ground instead of running off into a stormwater drain. A rain garden can absorb more than 30% more water than an ordinary lawn. Rain gardens are important as cities, towns, and suburbs replace forests and farmland; increased stormwater from impervious or hard surfaces can be a problem. Stormwater runoff increases flooding, and carries pollutants from streets, parking lots and even lawns into streams and creeks.



Rain gardens filter water into the ground and recharge local aquifers. They also provide valuable habitat for birds, butterflies, and beneficial insects. Rain gardens near your home can be near the house to catch roof runoff or farther out in the lawn to collect water from both the lawn and roof. It's better to put the rain garden in full to partial sun and not directly under a big tree. Typically, a rain garden is about 4-8" deep. Water running into the rain garden will naturally try to run off downhill. A berm will keep the water in the garden. A berm is a wall like area made from soil at the bottom of the

rain garden. Weeding around plants in the garden will keep out problem plants. Once flowers, grasses, and shrubs are established watering by hand is no longer needed.

3. NATIVE WILDFLOWERS – Native wildflowers are a benefit to backyards. Plants native to an area have adapted to the local climate and soils where they grow naturally. They are important species to offer food sources like nectar, pollen, and seeds to native butterflies, insects, birds, and mammals. Native wildflowers do not need fertilizers to grow and can go without pesticides too. Planting native wildflowers in a backyard rather than a lawn of grass would use less fertilizers and pesticides.



Native wildflowers help prevent erosion and absorb more water than a lawn. The plants have deeper root systems than grass. These deeper roots store more water and increase the soil's ability to store water. In this way, native wildflowers reduce flooding and reduce run off known as stormwater.

Native wildflowers also improve air quality and reduce air pollution. A lawn space planted with native wildflowers does not need to be mowed as often. There is less fossil fuel used to maintain them. These plants can absorb and remove carbon from the air too.

Native wildflowers give shelter and food to wildlife. They increase biodiversity and stewardship of natural resources. Native wildflowers can add beauty to any landscape. Source:

<https://www.fs.fed.us/> Photo by Teresa Prendusi.

4. BIRD FEEDING STATION – To attract wild birds to your backyard a bird feeding station can be set up. Place the station where you'll be able to view the birds that visit and where you can easily get to it to replace food. There are many types of birds who will visit a feeding station and they will find their food at different levels. Some birds feed from the ground, some forage in bushes and shrubs, and some birds will perch on a branch and find food in a tree. It's best to provide a feeding station on each level.



Mourning doves, juncos, chickadees, and blue jays are just some types of birds that feed from the ground. A pie pan can become a ground feeder. Punch holes in the bottom so that rain can drain through and then place the pan on a platform of rocks or twigs. You can also put this feeder on a table, tree stump, or deck railing. The seeds in the tin should be replaced on a regular basis to keep them fresh and clean. A hanging feeder can be purchased at a store or made out of a soda bottle or pine cone. Finches and nuthatches will visit a hanging feeder. Once you've attracted birds to either feeder

it's important to keep the feeder filled at all times. The birds become dependent on the food source.
Source & photo: <https://www.allaboutbirds.org/>

5. BIRD WATER STATION – Water stations provided for birds in your backyard are important every month in a year. Moving water is best. Birds are curious and can't resist a drip or a waterfall in a small garden pool. Birds use fresh clean water for drinking and bathing throughout the year. In summer, a water dripper from a small hose can be drawn in a birdbath. When it's cold outside in fall and winter, it's important to provide unfrozen fresh water.



Having water available for wild birds can increase the populations of birds visiting feeding stations. Blue jays, Bluebirds, and Warblers are just a sample of the variety of birds you might see at a water station. A water station can include a shallow dish, dripper or mister hose, birdbath, or small garden pool. Birds flying over a water station will be attracted to visit as they see glistening water. Some birds will drink directly from the mouth of the dripper. Others like a Robin or Martin will look for some muddy soil around a garden pond or pool to build their nest. The best bird bath should be shallow with about 1-3 inches of water.

Perches near the water station allow birds to rest and feel comfortable drinking or bathing and preening. The bottom of the bird bath or waterer should be rough to allow for good footing. It's hard for birds to fly well when they're wet. Putting the water station near shrubs or trees gives the birds a quick escape and cover from predators.

6. BRUSH PILE – A brush pile can provide habitat for a wide variety of wildlife. Flycatchers and dragonflies can perch on branches at the pile looking for insects. Salamanders can hide beneath the pile in leaf litter. Butterflies may rest and sun themselves at the top of the pile. Rabbits, turtles, juncos, and sparrows take shelter in the tangled branches. Toads, mice, and beetles will come and go, as will skunks and snakes that feed on them. A fox may even set up a den underneath a brush pile.



Good resting and escape cover are critical to an effective brush pile. Brush piles can be constructed for game animals and nongame animals. First find a suitable location near a field, field edge, pond, and woodland edge or clearing. Never place a brush pile where soil could easily erode. A brush pile can be built using branches from trees, old fence posts, large stones, and tree limbs. Build the pile during a *dormant* growth season. Layer branching and limbs at right angles in a criss cross fashion to create pockets of space. A second type of brush pile can be structured as an 'A' frame. For example, Christmas tree brush piles can be placed side by side tilting in to form the 'A' frame. Be sure to remove all tinsel and ornaments. Brush piles are important to a wide variety of animals. Entrance and exit spaces are vital for escape and cover.

7. BIRD NESTING BOX – A nesting box in your yard can provide essential habitat for many different species of birds. A nesting box is perfect for birds who would otherwise build a nest in a *cavity* in a dead or decaying tree. An increase in land development and removal of damaged or dead trees has left many cavity nesting birds with fewer natural places to raise their young. Also, invasive birds, such as the European starling and house sparrow compete with native bird species for remaining cavities. Putting up a nesting box can also help with scientific monitoring of birds.



There are many types of nesting boxes that can be bought at the store however; you can build nesting boxes following simple designs from books and reputable websites. Check that the box is well constructed of natural untreated wood such as pine, cedar, or fir. The box entrance should include a hole appropriate for the type of bird you're trying to attract. A raised floor and drainage holes will keep the inside of the box dry. The inside walls should be rough or grooved to help the young exit the box. Don't include perches outside the box which might aid predators or other harassing birds.

It's important to make sure the box is set at the right height and placed in the surrounding habitat appropriate for the bird you're hoping to attract. Monitor the box, once the young have fledged and the box is no longer in use it can be cleaned out.

8. SNAGS – Standing dead trees, called snags, provide birds and mammals with shelter to raise young. A snag is often called a wildlife tree. The insulation of a tree trunk allows wildlife to survive high summer and low winter temperatures. Tree cavities and loose bark are used by many animals to store their food supplies, while insects living in dead wood eat thousands of forest pests which can harm living trees. Woodpeckers and bats feast on the wood-eating insects and provide sawdust for ants to process. Dead branches are often used as perches by birds.



When a snag falls into or near water and wetlands, fish and amphibians hide under and around dead wood. This natural aquatic structure provides shelter for fish. Snags become softer as fungi, bacteria, and wood boring insects eat and break down wood. Dead wood serves as a groundcover, lessening soil erosion, and preventing animals such as deer from over-browsing plant seedlings. All trees of all sizes are potential snags. Snags of both deciduous tree and conifer trees are used by wildlife.

9. HOST PLANTS – Host plants are part of biodiversity food chains and life cycles. Host plants are specific plants that butterflies and moths lay their eggs on so that caterpillars in their life cycle can eat as they



grow. This is similar to the pickiest eater you know. A picky eater may not like a lot of variety of foods in his or her diet. A host plant pollinator or insect takes that to extreme being able to eat only one thing. Milkweed is a well-known example of a host plant for monarch butterflies. Monarch butterflies lay their eggs on the milkweed plant. During the metamorphosis, the caterpillar feeds on the milkweed host plant.

Milkweed is just one example of a host plant. There are too many to name all host plants however, they are critical to our ecosystems and

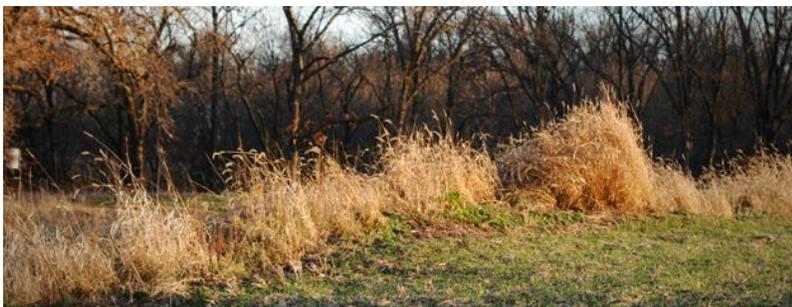
biodiversity. If there are fewer native host plants to lay eggs on, there are fewer types and populations of caterpillars. Caterpillars are eaten by a variety of birds that could suffer without a food source for their young. Caterpillars also grow into pollinators and insects that help our fruits and vegetables grow. We forget sometimes the food chain links that connect delicious foods like potatoes, strawberries, and much more to the biodiversity in our backyard. Source & photo:

<https://naturemuseum.org/>

10. BIODIVERSITY – Biodiversity is all the different kinds of living plant and animal species in an area and how they connect to one another. Food, water, and shelter are needed to support the habitat of a living organism. Biodiversity in an ecosystem provides crucial benefits like pollination, seed dispersal, water storage and improved water quality, nutrient cycling, and reduced use of pesticides. Biodiversity also shows the relationship between all living things. Damaging a link in biodiversity through habitat loss, invasive species, pollution, or over consumption can affect another living species in the food chain or web.

Humans play a role in creating or keeping biodiversity in an area. When biodiversity is established in an ecosystem there are less pressures on species being moved into categories of the list of concern, threatened, endangered, or extinct. Conservation efforts are needed to keep biodiversity growing and protect endangered species and their habitat.

Just one backyard can contain a wide range of species from butterflies to snakes to white tailed deer. Hosting the most biodiversity in an ecosystem often means there's ideal conditions for plants, trees, insects, and animals. Scientists who study biodiversity look at small samples of soil or water. Under a microscope, the bacteria and tiny organisms can give the health of what is able to live on the land.



11. EDGE HABITAT – Edge habitats occur at the point where two habitats meet such as field and forest, backyard and field, or backyard and forest. This edge habitat is a fracture or fragment between two habitats. This area can be wide or narrow. Often invasive species like to fill in this area such as multiflora rose and mile a minute.

Many animals will use this habitat as a hallway to travel between ecosystems.

Edge habitats can lead to succession. Succession means when vegetation like trees, shrubs, and smaller plants spreads out and grows over an area. Humans can affect edge habitats by introducing invasive species, allowing pets to act as predators and competitors, causing pollution or erosion, and building trails.

12. LOW MOW ZONE – Many species depend on grasses for food, cover, and nesting. One way to improve backyard conservation includes restricting mowing in an area where it is only mowed one to two times a year and native plants and grasses are allowed to grow. These types of habitats provide a sheltered area where various species can use camouflage to protect themselves from predators. For example, the Eastern Meadowlark uses tall grasses for nesting and feeding. Their color enables them to remain camouflaged. Milkweed is essential for the survival of the Monarch butterfly, and would fit well in a low mow zone.



These areas provide an excellent habitat for pollinators such as native bumble bees. A low mow zone allows plants to flower which in turn provides a place for pollinators to stop and have a meal. Soils in a low mow zone are held in place by plant root systems and reduce erosion. The benefits of low mow zones help to save money too with fewer hours of labor, less expense on fuel for the mower, less water, and no fertilizers needed.

A low mow zone should be open and sunny for at least 6 hours a day. It's best to wait to mow area until mid-August.