

Biodiverse Systems

Connections, beauty, wildlife and much more! **20 minutes at this station!**

This we know: All things are connected like the blood that unites us. We did not weave the web of life. We are merely a strand in it. Whatever we do to the web we do to ourselves.

--Chief Seattle

Goal: Increase biodiversity in the urban setting and by doing so create beauty and recharge for humans. In my yard, I:

1. creatively use the resource elements of food, water and shelter to create habitat for local organisms,
2. have developed pollinator gardens to provide appropriate pollinator resources all year long,
3. provide all the elements to be a certified National Wildlife Federation habitat,
4. created spaces for humans to sit, observe, and connect with Nature.

1. Biodiversity, the variety of species individuals and ecosystems is declining. By the International Union for Conservation of Nature estimates, 40% of amphibians, 34% of conifers, 33% of reef building corals, 25% of mammals and 14% of birds are threatened with extinction. Although humans have altered ecosystems for thousands of years the current rate and scale of change is unprecedented. Habitat loss, invasive species, pollution, population, and overuse, (collectively called the HIPPO factors), are unravelling the very functioning of the natural systems on which we depend. To most organisms, our cities and towns are virtual resource deserts, uninhabitable at best.
2. At this station, take a few minutes to look at pictures of some of the organisms that live here or visit. My yard is a certified National Wildlife Federation Wildlife Habitat and a North American Butterfly Association Butterfly Garden as well as stop on the North American Butterfly Association counts. Look behind you at the bee block. If you are lucky you may be able to observe a bee going about her job of making a nest cell. She nests in twig cavities and starts at the back of the next depositing an egg and a pollen ball before portioning off the that nest cell and starting another. The gardens include areas of bare ground for ground nesters as well as area of dead wood.
3. As you look around, look for the elements of **FOOD, WATER, and SHELTER**. Collectively these are known as **RESOURCES**. If an organism cannot be supported by the resources that it needs, it will die or move away. Remember that different life stages of the same organism, may require different resources at different times of the year. For example, Monarchs require milkweed to lay eggs because the caterpillar feeds on milkweed but

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the adult will nectar on a variety of plants. Some native bee species need small cavities to lay eggs in while others will make a nest in the bare ground.

4. **FOOD:** Some of you might recognize some common native plants. There are a variety of forbs, shrubs, trees, and vines to create a varied habitat and provide resources, especially **FOOD** throughout the year. There are plenty of native bunch grasses in my yard but the only “turf” you will see is a small area of buffalo grass in the front yard. I cover most of my fruit plants if I want to harvest some of the fruit. I always leave a portion of the plantings uncovered for wildlife!
5. **WATER** is available throughout the gardens. In the front yard, there is a rainwater drip feature in the west garden by the driveway. In the front yard there are two shallow bird baths which fill up early in the morning and then dry by the afternoon to prevent mosquitos. I use mosquito dunks in any containers of standing water. In the backyard, garden visitors share the chicken waterers or the fountain. Check out the rain drip waterers that can be made from a bucket, a bungee cord and mosquito screening! Even in the winter there is always liquid water somewhere!
6. **SHELTER:** I am slow to take down the garden in the spring so that pollinators and other organisms have shelter to overwinter. Look behind you at the bee block. If you are lucky you may be able to observe a bee going about her job of making a nest cell. She nests in twig cavities and starts at the back of the next depositing an egg and a pollen ball before portioning off the that nest cell and starting another. The gardens include areas of bare ground for ground nesters as well as areas of dead wood. I harvest the stems for bee bundles when I take down my garden in the spring. Bees will use any round cavity of the right diameter.
7. Scientists characterize the services provided by natural ecosystems into the following categories all of which are at work in my yard:
 - Regulating:** such as climate control, water purification, flood control
 - Supporting:** such as nutrient cycling, primary production, soil formation
 - Provisioning:** products such as fiber, food, wood, medicine
 - Cultural:** beauty, heritage, education, recreation, spiritual, inspiration

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To me, one of the most important of these is **Cultural**, the mental recharge and inspiration that we find in nature. Recent research suggests that we are happier, healthier, and smarter when we spend two hours a week outside. Throughout my yard there are many places to sit and observe.

8. If you have time, browse thorough the resources and check out the models to see how we are all connected.