ENVIRONMENTAL EDUCATION IN THE COMMUNITY GARDEN

LESSON 8

INVITING POLLINATORS INTO THE GARDEN

While bees do the majority of the pollinating work, other insects also act as pollen delivery agents in the edible garden. Native pollinators including flies, butterflies, beetles, wasps, and hummingbirds are also effective at sniffing out nectar and moving around pollen. In order to produce fruit or vegetables, many flowering plants require pollinators to move pollen from one flower of a species to another flower in order to produce fertile seeds.

Gardeners can attract pollinators to their garden by planting native flowers and herbs with showy flowers such as dill or pineapple sage. Native wildflowers are particularly effective in attracting native pollinators because they have evolved together and adapted to local conditions. Over the past fifty years, pollinator populations have declined due to habitat loss, use of pesticides, and pollution. Creating safe environments for these crucial organisms in community gardens benefits the ecosystem of the entire planet because all living animals on the food chain (including us) depend upon the foods produced by flowering plants.

Honey bee on milk thistle flower.

BEES

Because they feed only on flowers, bees do the most crucial pollinating work in a garden. They collect nectar to fuel their work and protein-filled pollen to feed their hive. In the process of sampling all of the flowers in garden, they provide invaluable pollination services for flowering fruits and vegetables. Around four thousand species of bees buzz through North America and are attracted to brightly colored and sweetly fragranced flowers. Bees are able to see ultraviolet colors, so are particularly drawn to yellow, orange, purple, blue and white flowers. Planting Black-eyed Susans, marigolds, salvia, alyssum, and flowering anise hyssop can help nurture busy, happy bees. Bees can also be found enjoying "weeds" such as dandelions and clover. They prefer flowers with short nectar spurs and easily accessible nectaries because the probobsis they use to reach into the flower is relatively short.

The leaf cutter bee uses composite flowers including Gallardia (blanket flower), asters, and sunflowers as a habitat in addition to pollen sources. A female leaf cutter bee will line her nest chambers in the soil with circular leaf cut-outs from these composite flowers.

Encourage bees with a diverse range of flowers that bloom at differenct times throughout the growing season. Leaving pieces of hollow twigs and a few branches on the soil provide plant material for nesting bees (70% of all bees). In addition to avoiding pesticides and chemicals, gardeners can encourage habitats for bees that nest in soil by making sure mulch levels are not too thick and providing small water supplies (a pollinator's version of a bird bath).

BUTTERFLIES AND MOTHS

Butterflies are attracted to yellow, red, and purple flowers with sweet scents. Native milkweed (*Asclepias*) provides pollen, nectar, and habitat for caterpillars. Nurturing habitats for desired caterpillars and larvae leads to a healthy and abundant butterfly population that will also help gardeners growing flowering vegetables like tomatoes and cucumber. Caterpillars will eat their host plants when they are born and can devour a lovage or parsley plant in a week or an entire row of legumes. Seeing this process as a necessary part of the pollination cycle will help gardeners be more respectful of the work swallowtails and monarchs do in the gardens.

HUMMINGBIRDS

Hummingbirds travel great distances in their search for delicious flower nectar. This makes them great pollinators because they move pollen in the process and increase biodiversity in plant species. Hummingbirds love red, nectar-filled flowers such as fuschia, canna, and honeysuckle and develop a territory path claiming the most delicious flowers in their daily path.

WASPS, BEETLES & FLIES

Flower beetles, pollen wasps and hoverflies disguise themselves to look very similar to many bee varieties as a defense mechanism while they feed on the same pollen preferred by bees. While they are less effective pollinators than bees, their movement of pollen in the garden aids the overall ecosystem of a healthy pollination system. These insects love native purple coneflower, sunflowers, yarrow, and other flowers with showy pollen displays.

ACGA American Community Gardening Association
EECapacity Growing capacity among *all* environmental educators.
Cornell University Founded A.D. 1865
Civi E Lab Ecology
United States Environmental Protection Agency
naaee North American Association for Environmental Education
Peterson Garden Project

LESSON PLAN 8

BE THE BEE

OBJECTIVES:

Help gardeners see the garden through the "eyes" of a nectar- and pollen-hungry pollinator. Teach them how to nurture fragrant and bright native flowering plants as necessary partners in the edible food garden.

Encourage gardeners to develop respect for pollinators while learning to understand how beneficial bees, wasps, and other insects promote plant development.

Enhance gardeners' understanding of ways that cucumbers (and other flowering vegetables) depend upon pollinators to produce our food.

A hummingbird drinking from a Sweet William flower.

MATERIALS NEEDED:

- A community garden or nature area thriving with flowering plants
- A sunny day

ACTIVITIES:

1. Walk through the garden and identify pollinators.
2. Ask gardeners to identify flowering plants in the community garden and discuss the importance of a flower's shape, color, scent, and bloom time in aiding pollinators for different vegetable crops.
3. Encourage gardeners to pretend to "be the bee," by discussing pollinator eyesight, which spectrums they can see, and the most attractive flower colors. To get a higher number of visits to a garden by bees so they can pollinate small yellow cucumber flowers, it's a good idea to plant additional flowers they can see, such as borage to give them even more of a reason to stay and pollinate. Because bees are able to see ultraviolet colors, they are particularly drawn to yellow, orange, purple, blue and white flowers. Ask gardeners to identify bee-friendly borage, calendula, Black-eyed Susans, marigolds, salvia, alyssum, flowering anise hyssop, dandelions, and clover.
4. In addition to identifying flowers that are visibly attractive to pollinators, nectary length on blossoms. The proboscis (the insect's nectar straw) differs in length between bees and butterflies, for example. Bees like flowers with short nectar spurs with easily accessible nectaries whereas butterflies and moths can be drawn to longer flowers like daylilies, nasturtium, and sage. Hummingbirds look for even longer nectar spurs such as fuschia, lilies, canna, and foxglove.
5. Scent can be an even stronger attraction than color, as a beacon for pollinators. While touring the garden, suggest that gardeners follow where their nose takes them. Stop to smell the scent of flowers like nasturtiums, marjoram/oregano flowers, and anise hyssop and discuss how the sweetness detectable in the scent tells the insect that the nectar will also be sweet.