NICHO

Romancing the Pollinators

Editor's note: Nicho is new—not a column, not a feature, more of a chance to highlight something or someone newsworthy or just plain interesting, much like the nichos in a classic Santa Fe home.

Several years ago in early November, after a particularly robust (and welcome) monsoon season and as warm weather continued to linger, I sat in the forest along the Big Tesuque Creek—listening to the warbling stream, its edges softened with tussocks of autumnal grasses.

Above me, spires of Douglas fir punctuated the honey-colored sheen on the gray-green trunks of swaying aspens. Long arches of these fallen and weathered trees frame the bare-branched understory of tea-leaved willow, currant and rock spirea—all three pollinator-friendly plants. Dangling seed heads of amber-mauve-hued grasses, ruby-berried Kinnikinnick (aka bearberries) and ice-blue pussytoes, weaved together in this forest enclave. Armed with pencil and paper, I noticed shadows from the low branches of the evergreen fir moving gently across the white pages of my notebook. Nearby, mica sparkled off granite boulders strewn with fallen leaves, twigs and branches, while a spider slid over tuffets of grass and an indigo-orange butterfly wafted through the air.

A refreshing sense of comfort seeped in, as I reflected on this constellation of visual cohesiveness and how it reveals the deep ecology of a biologically rich environment, rich in relationship as well as species. The more we observe and experience a variety of habitats from alpine tundra, forest, stream, steppe, chaparral, desert and coastal plains, the greater our capacity to sense this interconnectedness throughout nature. The more this inspires us, the greater the possibility to emulate and practice the spontaneous feeling of nature's vast storehouse of materials within our own environments.

A garden or habitat rich in mutually beneficial species cultivates a diversity—the connective tissue linking nectar and pollen-producing plants with nectar and pollen-collecting animals. This supports a vital ecological process; through the transfer of pollen a flowering plant is fertilized, allowing reproduction and development of fruit and seed. Co-evolution has allowed for floral adaptations that produce a kaleidoscope of shapes, colors, fragrances and nectars designed to attract just the right pollinator.

The North American Pollinator Protection Campaign, whose stated mission is "to encourage the health of resident and migratory pollinating animals in North America," in its Pollination Primer (an introductory guide that lays out the fundamentals of plant reproduction and the role of pollinators in this cycle) tells us that "over 200,000 species of animals act as pollinators, many distributing pollen in different ways. Vertebrates, birds or bats carry pollen in their feathers or hair. Invertebrates, bees-wasps, butterflies and moths lack hair, rather have bristles on their legs, head or other body parts. Honeybees have tiny baskets (corbiculae) on their hind legs for carrying pollen back to the hive. When butterflies use their long proboscis or hummingbirds use their long beaks and brush-like tongues to sip nectar from tubular flowers, they get peppered with pollen on their heads or nectar-gathering appendages."

Four thousand species of bees are native to North America and pollinate the greatest diversity of plants. Honeybees were introduced here in the early 1600s by European settlers in Jamestown, Virginia. Most rural households and many in towns kept bees as a source of sweetener. With as many as 50,000 leaving the hive at once, they search for nectar stored in the blossoms—its sugar their primary source of energy—and gather pollen, which provides proteins and fats. It is the nectar enriched with enzymes and ferments which is actively concentrated in the hive—that is what becomes the honey.

Below are some of my cultivation techniques, along with suggestions for attracting pollinators. These are tips I've gathered over the years, some from design practices, others from guidelines and all gathered from both personal experience and from the NAPPC and the Xerces Society for Invertebrate Conservation.

• After a few autumn frosts, pull away mulch from the plants and turn in compost. The autumn is the optimum time for this practice, as it accommodates root growth activity.

• Apply a biodynamic compost (an alternative agricultural practice originally developed by Rudolf Steiner in 1924, made up of six specially made plant

PHOTO BY THE LATE DAVID SALMAN

Agastache rupestris with female broad-tailed hummingbird.

PHOTO MAGGIE LEE

Bumblebee pollinating a Fra Dagmar Hastrup Antique Rugosa Rose in Santa Fe.

PHOTO LAURI GAFFIN

Honeybee on a Dahlia blossom in Santa Monica, California.

derived substances incorporated into a built pile) and amendments into the soil. Colorful, fragrant leaves from ash and from fruit trees (crabapple, locust, linden, maple and redbud) are collected and used for mulch, putting the garden to sleep beautifully.

• In spring, even in this wonky spring that we and nature have been trying to adjust to, the remaining leaves can be crumbled and left or removed.

• Often during the summer, I will stir up a mixture of milk, honey and water to bring the beneficial insects and spray it onto the plants. Hugh Courtney, founder of the Josephine Porter Institute for Applied Biodynamics (based out in Floyd, Virginia) recommended I try this—and it's something I've continued to employ, as it has been incredibly effective. Hugh transitioned in June of 2020 at the age of 87, but he'd been creating these preparations since 1982. In an interview I had with him in 2005, he described the dynamic rather than the physical properties of the preps. "With biodynamic agriculture and preps, we are asked to think in terms of carrier of forces, rather than substances. Just as the effects of the forces of magnetism or gravity can be observed without actually being able to see these forces, so too we can recognize through their effects, the forces which are released through the use of biodynamic preps."

Since implementing this last JPI-approved practice, I've experienced excellent results from the honey-and-milk solution; it has always resulted in tremendous activity, especially among the bees and some butterflies and hummingbirds, who come by to pollinate the flowers. This reciprocal relationship is as invigorating (for me) as it is nourishing for the pollinators, the plants and the soil they grow in. A win-win for us all. ■

—Maggie Lee

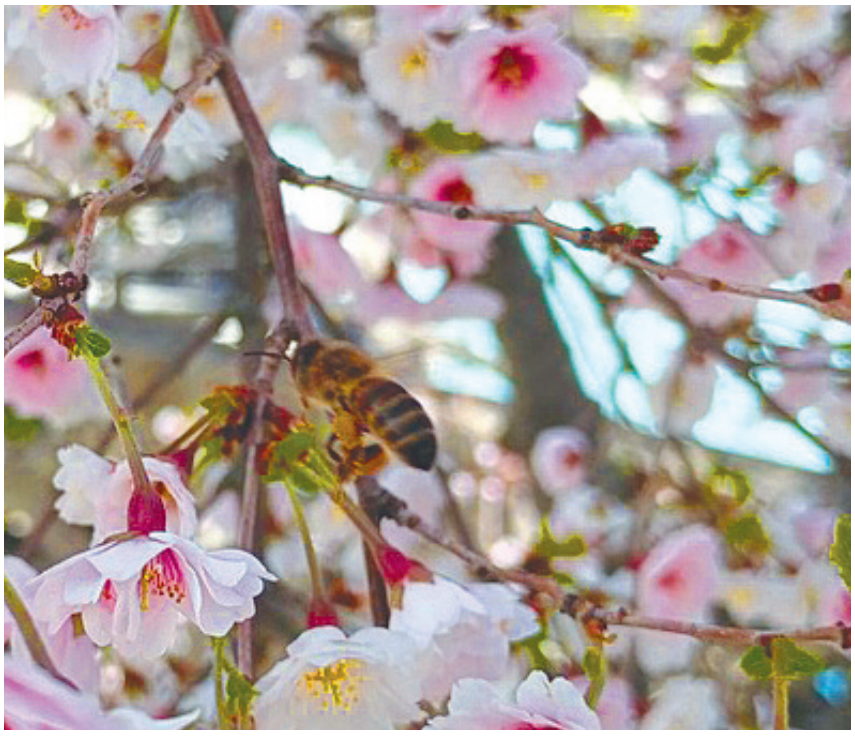

PHOTO LAURI GAFFIN

Honeybee on cherry tree in Central Park by Petra Augenstein, New York.

Tips for attracting pollinators:

1. Most pesticides are not selective; some actually kill off beneficial plants and insects along with the peskier ones. Honeybees, for example, love dandelions, which is often the first herb many folks will first try to eradicate from growing in their lawn.

2. There are many plants that act as host plants (from New Mexico privet and gambel oak to sunflowers and sweet alyssum) for beneficial insects. Experiment and combine with companion planting for orchards and vegetable gardens and with permaculture plant guilds.

3. Include waterwise, native, adaptive, homeoclimatic (similar soil and climate around the world) and habitat- friendly plants that are well suited to local growing conditions.

4. Observe the microclimates within your garden. For instance, what you can plant in an East exposure is quite different from what works best in a West environment. This allows for several unique habitats within the same garden space. Choose plants compatible in moisture and cultural needs. Learn their growth habits and sociability status to avoid one plant overtaking its neighbor.

5. Heirloom varieties of herbs and perennials provide good foraging. Hybridization has reduced the production of nectar and pollen and sometimes leaves the resulting plant completely sterile—as in those that end up as double flowers—which is useless to bees and other pollinators.

6. Vary the colors in your flowers. Bees have good color vision and are especially attracted to blue, purple, violet, white and yellow. They like petals with "nectar guides"—colored stripes, spots and markings—that direct them right to the sweet stuff. For example, morning glories, violets and foxgloves. Butterflies favor orange, yellow, bright pink and blue flowers and they often seek out flowers that match their own color so as to camouflage themselves from birds. Hummingbirds seek red, orange and yellow flowers. Moths search out white flowers, especially fragrant night bloomers.

7. Planting in drifts comprised of one species will attract more pollinators than individual plants scattered throughout a habitat patch. The size of the drift relates to the size of your garden. If space allows, plant drifts of 4 feet or larger in diameter. Also: aim toward an artful randomness of varying densities reflective of a wild meadow. Leave open space nearby your garden/meadow, which will benefit from the additional nectar-pollen available from forage plants in the surrounding landscape. As a design element, this transitional link can lift and lead the eye to wider views, inviting a sense of reference, while lending a gentle naturalness and visual cohesiveness.

8. Provide a wide selection of flower forms and shapes. Butterflies and moths need a place to land and prefer broad petals like those of echinacea or clusters of florets like butterfly bush, dill or fennel. Hummingbirds like long tubular flowers like agastache (giant hyssops) or trumpet vine.

9. Create a dynamic relationship between structure plants—materials with strong form, i.e., crabapples or cutleaf smooth sumac trees; shrubs like manzanita and waxflower; fiber plants like yucca pallida and rostrata; or mature lavender and rosemary plants. Globe shapes, as in those of echinops (globe thistles) or *Eryngium yuccifolium* (the rattlesnake master), an artichoke plant and flat flower heads like yarrow or echinacea. Contrast these choices with shorter-lived spring bloomers and supportive fillers—species bulbs and iris, phlox, poppies, penstemon and others. Drifts of grasses, both native/adaptive and ornamental, tie the ensemble together.

10. Plant for flower diversity displayed over a long season, from wallflowers and currants to late-season asters and chamisa. Eighty percent of all birds like sunflowers. This diversity supports a range of pollinators flying at different times of the season.

11. Provide shelter, nesting areas and feeders for birds and other pollinators—from wooden nesting blocks, hummingbird feeders, small water features, a large boulder for butterflies to sun upon or arbors covered with vines. Birds in our area that also seek out nectar include hummingbirds, warblers, Western tanagers and ladder-backed woodpeckers. Consider planting trees—from lindens, maples and oaks to pines and spruces—that provide gleaming sticky resins, saps and gums for birds' nesting materials. Bees collect the resins as a raw material and, when combined in specific manner, becomes propolis (bee glue), the lining for the hive that forms a protective, anti-microbial envelope.

For inspiration and to see how the above tips are put to use, take a stroll through the Santa Fe Botanical Garden, which showcases our unique "interior West" design and plant palette. The garden also offers engaging and hands-on programs for creating our own ecologically sound and pollinator habitat garden spaces.

Sadly, as grasslands, fields and forest disappear, so do their pollinators. Let's help balance this loss of habitat by practicing restorative ecology—establishing pollinator-friendly gardens, a protective refuge where pollinators may live by their intrinsic nature. We can also celebrate in tandem with the NAPPC's annual Pollinator Week, June 22-28, which sponsors events to raise awareness of the importance of pollinators in our daily lives. In the realm of nature, no process is closer to the heart of life than pollinator partnership.

—Maggie Lee