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WINTER 2021

POLLINATOR PATHWAYS

Restoring an Ecosystem

by Greta Burroughs



Sitting at her dining room table and skimming through the pages of the *Earth Island Journal*, Donna Merrill pondered a difficult question. How could fragmented, isolated pockets of open landscape be linked together in spite of urban sprawl?

As an environmentalist working with the Hudson to Housatonic Regional Conservation Partnership, she wanted to connect these dispersed conservation areas so pollinators could freely move from one site to the next.

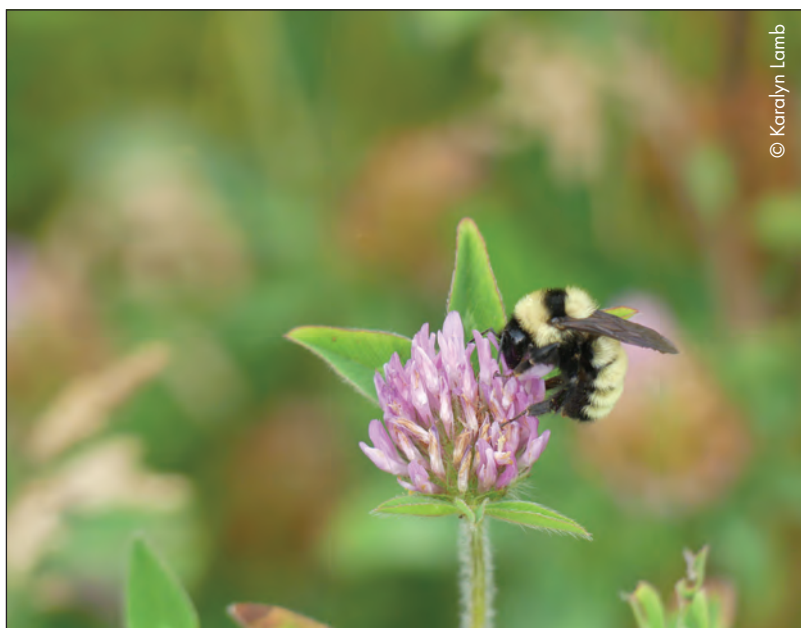
As Merrill gazed at the magazine, a solution to the dilemma materialized on the pages in her hands, when she chanced

upon an article about a lady in Oslo, Norway, who was setting up “Bee Highways.” This woman convinced businesses and residents to construct roof-top gardens and window boxes, connecting the city’s surrounding open landscapes right through the bustling metropolis.

What a brilliant idea, Merrill thought and mapped out a corridor stretching from South Salem, New York, to Ridgefield, Connecticut. If she could encourage businesses and residents to plant native trees, shrubs, and flowers along the pathway, they would serve as waystations for pollinators to rest and eat while passing through large tracts of developed suburbia.

But how to generate the needed enthusiasm? Merrill relied on actual legwork. She started ringing bells, as she went door to door. She explained the importance of providing habitat for pollinators to each homeowner, gifting them free dogwood trees and native shrubs. The grassroots initiative created the headlines Merrill and her team had hoped for.

Homeowners began to visualize their yards from a different perspective. Their formerly clean, manicured lawns gave way to patches of legumes and cheerful native plants growing freely in the backyard. A variety of shrubs and flowering bushes of all different shapes and sizes outlined the edges of their property. When they pulled up into their drive, they were welcomed by a flower garden rich in hues of yellow, intertwined with shades of red, blue, and pink. Countless winged creatures nectared on a smorgasbord of delicious treats while exploring their new sanctuary.



The declining golden northern bumble bee (*Bombus fervidus*), currently listed as vulnerable, investigating some clover.

The idea of providing for the butterflies, bees, birds, and other pollinators with small changes in garden design and maintenance habits won overwhelming support.

Pollinator Pathways Northeast

Merrill's original pollinator corridor was funded through a grant from the Forestry Service. When the grant ended in 2017, Merrill realized she couldn't allow her project to wither by the wayside. The logical next step was to grow interconnected pathways into other regions.

"We had our toolkit all figured out, and everything was ready to go." Merrill presented the idea to the people she knew best, her hometown of Wilton, Connecticut.

As a board member of the Wilton Land Trust, Merrill understood the biodiversity of the area. Her goal was to connect the existing pollinator-friendly areas located to the north and south of Wilton via waystations that would dot the urban landscape, connecting the two natural habitats right through her community. She mapped out a corridor that stretched between two nearby towns, Norwalk and Ridgefield, with Wilton nestled in the center.

Employing the same winning strategy she used before, Merrill's team began educating residents about pollinators by visiting neighborhoods, sponsoring community events, and encouraging folks to create pollinator gardens. They emphasized how their gardens would benefit the birds, bees, and butterflies, bringing beautiful wildlife to their yards.

Young and old alike started incorporating more native plants into their landscape and getting rid of invasives. They stopped the use of pesticides. They cut back on mowing the grass every week. Some leaf piles were allowed to stay in the yard as a refuge for native bees to overwinter.

By word of mouth the idea of interconnected habitat spread to adjoining neighborhoods both inside the corridor's pathway and outside. Like water that crisscrosses the



This female hummingbird is perching on a Serviceberry shrub, *Amelanchier canadensis*, after visiting a trumpet creeper vine, one of its preferential nectar sources.

landscape, seeking a route to the sea, the initiative trickled through the state and beyond. What had started as a local project turned into a multi-state initiative, the Pollinator Pathways Northeast.

Pollinators don't pay any attention to county lines or state boundaries; neither do the pathways. Residents in Connecticut and New York participated in the original corridor. And even once an initial pathway was established, interest in creating and expanding additional land as part of the Pollinator Pathways remained high in both states.

Charles (Chet) Kerr advocates for pollinator conservation in the southern Hudson Valley region in New York. A couple of years ago, he pitched the idea of making a pathway for the pollinators through his village. Since he wasn't a gardener, Kerr enlisted help from local gardening clubs and other experienced gardeners.

"Not everyone was thrilled with the idea. Well, at least not initially." Undeterred he planted demonstration gardens to show residents what he had in mind. Kerr sponsored a living classroom series, inviting guest speakers to talk about the ecosystem services pollinators provide to plants.

"It was a real education." Residents discovered that they could provide sustenance to the six-legged and winged tourists passing through their little burg. "People seized upon the idea, and now 20 villages in Westchester County are involved."

Not only did his neighbors suddenly have a greater awareness of their local ecology, Kerr realized, but learning about the plight of pollinators was a stepping stone, providing insight into larger environmental issues:

- When folks grasp the relationship between pollinators and pollinator plants, they come to see the role pollinators play in maintaining the health of our environment.
- It has an empowering effect. Climate change may seem overwhelming, but through Pollinator Path-



Donna Merrill, founder of Pollinator Pathway NE working with volunteers at a planting in Wilton, CT.

ways, people realize changes in their own backyards make a positive difference.

- Engaging residents on issues like healthy yards and reducing pesticide use serves as a gateway to related issues such as sustainability, recycling, food waste, and water conservation.
- By taking one small step at a time, there's no end to the strides we can make in solving many of our environmental issues.

Stronger Together

Many civic groups, environmental organizations, non-profits, and the like work tirelessly to revitalize habitat. Their goal—bring nature back into balance. There's only one caveat. No one knows what the others are doing.

The Hudson to Housatonic Regional Conservation Partnership (H2H) solves this dilemma by bringing together partners with the aligned goal of conservation, ultimately achieving more as a team than as individual groups.

Katherine (Katie) Blake coordinates all these efforts by networking and organizing members across western Connecticut and eastern New York. She skillfully helps them navigate toward the common goal of “enhancing the connection between people and nature.”

“It's incredible how the Pollinator Pathway idea caught on, and it's still growing,” Blake said. In the first year, 35 towns organized steering committees. Now, there are over 100 towns from Connecticut, New York, Pennsylvania, Massachusetts, and New Jersey.

Blake foresees this program continuing to grow, serving as a model for engaging people in conservation projects and land stewardship. “We need to get people enthusiastic about making changes and planting more. It's an amazing effort to watch.”

Louise Washer, the board coordinator for the Norwalk River Watershed Association in Connecticut, was delighted



Chet Kerr in the pollinator garden that also grows a lot of vegetables. He created the plot at the Community Gardens on the Columbia University Nevis Property in Irvington, NY.

with the enthusiasm Pollinator Pathways stirred in her state and knew it would be a great way to connect the seven cities comprising her association.

“The focus is connecting land and creating habitat,” Washer said. “But it's also important to connect people who care about this issue. To me, that's the most rewarding and important part of it.” She's now in touch with people throughout the region who care about conservation. “That makes me feel so hopeful about humanity working together to make the changes we need.”

More Than Just Planting Flowers

Mapping out the corridors and creating waystations for pollinators through urban settings is a major undertaking, but there's more to protecting our pollinators than just planting flowers.

The overuse of pesticides remains a major culprit in the decline of habitat, beneficial insects, birds, and wildlife. Ticks and mosquitoes can make life miserable. Since the 1940s, the quickest and easiest way to deal with these nuisance pests has been to grab the insecticide and spray down everything in sight. Just think of the pithy slogans of some mosquito spray companies that promise to make the outdoors insect free.

Specialists such as Kim Stoner, a native bee expert at the Connecticut Agricultural Experiment Station in New Haven, have strived for years to change this destructive, wage war against the insects mindset. In 2016, Stoner and her colleagues were called upon by state legislators to investigate and report on the effects of pesticides on pollinators.

Their results indicated that some of the insecticides which contained neonicotinoids were harmful to pollinators, particularly, the native bee populations. In response Connecticut became one of the first states to pass a Pollinator Protection Act banning neonicotinoids. Homeowners can no longer buy or apply those insecticides without a permit.

Washer from Norwalk pointed out that not using pesticides is a major tenant in Pollinator Pathway's philosophy. “We have lots of information on the website that addresses



Louise Washer (left) and Jackie Algon, co-founders of Pollinator Pathway NE in Wilton, CT.

safe ways to control ticks and mosquitoes while not harming pollinators or introducing poisons into a yard that can harm pets, people, and water.”

It’s not just pesticide use that homeowners need to keep in mind. “Giant suburban lawns suck up a lot of water,” Washer explained. In one year, nine billion gallons go toward watering turf grass. What can be done to reduce this water usage? Simple. Fill up that space with less thirsty native flora.

The three-three-three strategy is perfect for homeowners, who want to provide a waystation for pollinators. “Choose three spring, three summer, and three fall native plants,” Washer said, “so you have a succession of blooms throughout the whole growing season.” And don’t forget to include shrubs and trees. “Trees are meadows in the sky.”

A diverse habitat makes for a healthier habitat, as it can better fend off diseases and predators—no giant monocultural swath to attract pests. But even healthy, diverse habitats can be overcome by invasives. These non-native trees, shrubs, perennials, and grasses invade and take over, upsetting the natural ecological balance. When left to spread unchecked, they quickly outcompete natives.



Brown belted bumble bee, *Bombus griseocollis* foraging on the brightly colored butterflyweed, *Asclepias tuberosa*—a host plant for Monarch butterflies. These bees can be best identified by their trim “crew cut” fur and by the belt of brown hair that usually appears near the front end (on the second segment) of their black abdomens.

“The lists of invasives coming into our area keep growing,” Washer said. “Ways to get rid of invasives are listed on the website, but the most effective tactic is to remain vigilant and remove them as soon as you see them.”

Lots of Life Out There

Connecticut is home to over 350 species of native bees. “Many are specialists that collect pollen from a particular group of plants,” bee scientist Stoner explained. “Most of them are solitary and have only a short season of activity, some in spring, some in the fall.”

While we know a lot about native pollinators and their life cycles, we’re still missing lots of basic information. The last complete census of insects dates back to 1930. It’s hard to know if species are in decline, when we don’t have good numbers to serve as a baseline. Ideally we would compile checklists listing each and every species found in specific areas, the first and last year it was sighted, when it is active, and the type of habitat it preferred. “It’s important to create checklists so we can keep track of what’s out there, the habitat they need, and if they’re migrating north due to climate change,” Stoner said. To help fill in these gaps, they have people scouting the state gathering information for a new online public-use database they are compiling.

Meanwhile, Stoner uses extant information to improve life for the state’s pollinators. “I was



Nikki Coddington’s pollinator pathway yard in Irvington, NY shortly after the monarch butterfly emerged and was just drying its wings.



Monarch caterpillar foraging on common milkweed, *Asclepias syriaca*. During the larval stage they eat and grow, increasing 2,000x in mass.



The golden northern bumble bee checking out on of its favorite host plants, foxglove beardtongue (*Penstemon digitalis*).

tasked with writing a guide for the state's department of transportation to use in developing pollinator habitat along the roadways." Her native plant working group devised a plan detailing how the DOT could adapt roadside maintenance so habitat would flourish. "Now Connecticut has 51 designated habitats," and other agencies are being encouraged to implement ideas that include pollinator habitat in their future plans as well.

Across the state line, inaccurate, outdated information hampered New York's conservation efforts. They needed an accurate survey of pollinators inhabiting the Empire State, so they enlisted a host of experts and volunteers to survey for pollinators.

In the Hudson Valley, Karalyn Lamb volunteered her services. She combed the vegetation atop a capped landfill at Croton Point Park for any native pollinators buzzing or fluttering around the unkempt meadow. No luck.

Disappointed by her fruitless effort, Lamb returned to her car. In the parking area, she noticed a small, unusual-looking bumble bee hovering around some foliage. Fascinated by the mysterious bee, she snapped a picture of it. She posted it on the iNaturalist website hoping someone would recognize the species.

To her surprise Lamb discovered she had captured a photograph of the rare and imperiled golden northern bumble bee (*Bombus fervidus*), currently considered vulnerable. "Where there's one, there's more, and I'm going to find them."

This sighting wasn't her first time tracking down a pollinator. An avid gardener, Lamb enjoyed spending time outside tending her flowers. Still, she had never really connected the dots between the insects buzzing around her garden and the nectar they were craving until her introduction to Doug Tallamy's book, *Bringing Nature Home*. "It opened my eyes to a world I never knew existed."

Inspired by her newly acquired knowledge, the retired school teacher started incorporating specific native plants into her garden. Her aim was to attract the pipevine swallowtail, by providing one of its favorite delicacies, Dutchman's pipevine.

Her garden transformation paid off. The butterfly eventually found her garden and transformed Lamb's casual interest into a deep curiosity to learn more about her winged neighbors.

In 2018, Lamb participated in the state's inaugural Empire State Native Pollinator Survey. "No one knew the conservation status of our native pollinators. The only records we had were compiled from old lists found in museums," she noted. "I'm no scientist, but I thought I could help by going out and taking some pictures."

Which is how she ended up atop a converted landfill searching for pollinators. Since then, she and her bird-watching colleagues have documented several more sightings of the yellow-banded bumble bees.

Lamb studied what plants the bees preferred to visit, adding some of their favorite host plants into her suburban yard: foxglove beardtongue (*Penstemon digitalis*) and wild bergamot (*Monarda fistulosa*).

"It was so incredible. During the early summer, I had regular visitations just about every day to my little post-

Name Game

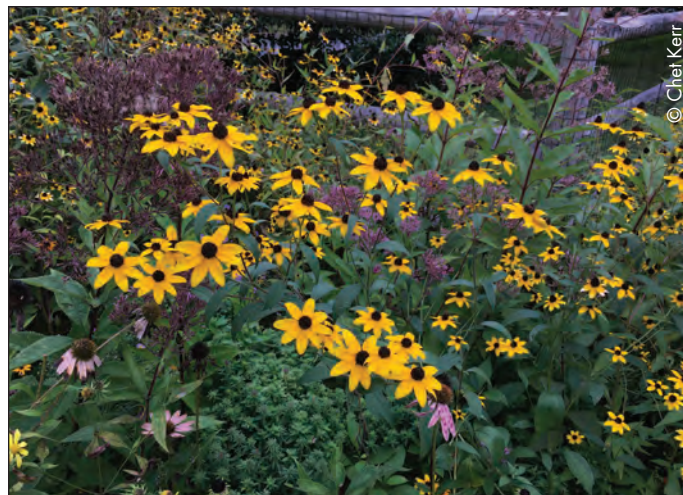
The original Pollinator Pathway was founded by Seattle artist, Sarah Bergmann. It is an interdisciplinary design project created to research and respond to a broader story about nature in our time. <http://www.pollinatorpathway.com/>

The two projects share the Pollinator Pathway name but are not related.



Common buckeye, *Junonia coenia*, foraging on a Chinese mint plant in an herb garden. The bold eyespots serve to startle away potential predators.

age-stamp-sized pollinator garden.” When they departed in search of new flowers, Lamb took to her computer and attempted to follow the bumble bees’ journey online. She posted a photo along with the date, time, location, and the flower it was foraging on through the Empire State survey page on iNaturalist.



One of the Demonstration Gardens at the O’Hara Nature Center in Irvington, NY planted by Chet Kerr.

Another post on the site alerted her to the sighting of another golden northern bumble bee 15 miles to the south at the O’Hara Nature Center. Since Lamb served on the steering committee for her local Pollinator Pathway, she knew the nature center was already located on a pathway. Would it be possible to create a corridor to link the two populations of bumble bees?

How Pathways are Determined

Choosing a path for a pollinator corridor is not a simple task. First the region’s ongoing conservation efforts, opportunities, and threats must be evaluated through observations and analysis. Financial resources are always limited, so projects have to be prioritized. “We need to determine which areas have the highest conservation value to be designated as a Pollinator Pathway,” explained Blake from H2H, “but we never exclude or discourage anyone from planting pollinator plants.”

Determining what plants are needed for the region is also critical. Planners search for native vegetation adapted to the region’s climate that offers food, shelter, and nesting sites for pollinators as well as cover for the resident wildlife. “We have to include a wide variety and diverse selection of shrubs, trees, and flowers that will support them all from early spring until fall.”

Their objective is to restore ecological value back to the land by “working with what’s already there,” noted Blake. “If we have a maple stand, we bring in more nectar plants or shrubs that flower at different times to enhance the area.”

In an urban setting with virtually nonexistent yards, residents get creative by constructing raised garden beds, overflowing patio pots, or window boxes. If permitted, residents seed native wildflowers or clover along the roadway shoulders.

Wild bergamot (*Monarda fistulosa*) is much loved by pollinators and adds a bright, bold dash of color to any pollinator garden.





Leafcutter bee foraging on butterflyweed, *Asclepias tuberosa*. The name leafcutter derives from bees' practice of using their sharp-edged mandibles to cut leaves and flower petals, which they transport back to their nests. They use these materials to line the walls of brood cells, into which they lay their eggs.

Blake approaches this as an exciting opportunity to help people realize they are part of something that extends beyond their own door. Every little plant provides food, shelter, or a resting place for our pollinators. "Bees, birds, bugs, and wildlife return when native plants are restored, and we stop using pesticides." If you plant it, they'll find it.



Snowberry clearwing moth, *Hemaris diffinis* foraging on phlox 'Jeana,' (*Phlox paniculata* 'Jeana') a beautiful cultivar highly ranked for both its pollinator-attractiveness and garden worthiness.

Becoming a Partner

A Pollinator Pathway is town-led initiative. By displaying the Pollinator Pathway signs, each town proclaims they are part of the connected effort of interlinked corridors, helping pollinators move across fragmented landscapes. All the towns have a common goal, but they all approach their conservation efforts independently. No two look alike.

It's very simple for a town to join the Pollinator Pathways program. Just contact them via the website <https://www.pollinator-pathway.org>, which provides all the resources a town needs to get started. It's an open resource about native plants, pollinators, invasive plants, pesticides and their alternatives, along with helpful guidelines and articles about creating pollinator habitats.

No master blueprint tells towns what to plant or how to coordinate their pollinator corridor. Municipalities and their citizens must simply provide a plant-friendly route for pollinators to follow, linking open landscapes. They must refrain from using pesticides and chemical fertilizers in this corridor.

Each town designs its own pathway. Volunteers then typically contact the businesses and residents along the corridor and encourage them to create safe pollinator habitats. People living in the vicinity but outside the pathway are welcome to join in.



Pollinator Pathway sign in Karalyn Lamb's suburban yard

But how does a town get the proverbial ball rolling to improve pollinator habitat? Merrill's field-tested toolkit answers those question and provides suggestions for:

- Ordering Pollinator Pathway signs
- Tips on fundraising
- Brochures to adapt and use in your community
- Instructions on forming a steering committee
- Ways to get organizations, groups, and individuals involved
- How to get people to talk to one another about conservation
- How to get people engaged with their own yards
- Kick-off events
- Ideas for guest lecturers

"The beauty of Pollinator Pathways is that it's scalable," Merrill said. "It can be embraced by a land trust covering several towns with thousands of acres, or by someone living in an assisted living facility with one little six-inch flower pot on her back patio."

Native plants are not fussy; most of them are easy to grow. "You don't have to pamper them," Merrill said. Children can do it. Grownups can do it. All communities, whether they're lower income or more affluent, can get involved. Pollinators don't discriminate. They love everyone who cares enough to plant a flower.



Resources

For additional information about neonicotinoid insecticides and the potential dangers they pose to pollinators, visit <https://xerces.org/pesticides/understanding-neonicotinoids>

Kim Stoner's Pollinator Information page contains a wealth of information regarding pollinators in Connecticut. <https://portal.ct.gov/CAES/Publications/Publications/Pollinator-Information>

New York's Empire State Native Pollinator Survey: <https://www.nynhp.org/pollinators>

Introductory video about Pollinator Pathways Northeast: <https://youtu.be/nCFqjp94M2E>

For more information about the Pollinator Pathway Northeast email info@pollinator-pathway.org

Greta Burroughs has worked as a freelance writer since 2005. You can usually find her typing madly away at her home in South Carolina, where she resides with her two dogs.

