

Fighting the ‘insect apocalypse’ plant by plant



Marjorie Meekhoff, president and founder of the nonprofit Pollinator Pathway East Lyme, cuts back peonies, which are not native plants, in the gardens at the East Lyme Community Center on Monday, June 3, 2024. (Sarah Gordon/The Day)
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An invasive multiflora rose is seen in the gardens at the East Lyme Community Center on Monday, June 3, 2024. (Sarah Gordon/The Day)
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Marjorie Meekhoff, president and founder of the nonprofit Pollinator Pathway East Lyme, points out a non-native butterfly bush in the gardens at the East Lyme Community Center on Monday, June 3, 2024. (Sarah Gordon/The Day)
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Marjorie Meekhoff, president and founder of the nonprofit Pollinator Pathway East Lyme, points out little seedlings of the invasive barberry bush in the gardens at the East Lyme Community Center on Monday, June 3, 2024. (Sarah Gordon/The Day)
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Marjorie Meekhoff, president and founder of the nonprofit Pollinator Pathway East Lyme, reacts to finding the invasive burning bush in the gardens at the East Lyme Community Center on Monday, June 3, 2024. (Sarah Gordon/The Day)
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Marjorie Meekhoff, president and founder of the nonprofit Pollinator Pathway East Lyme, points out an area volunteers recently have been working on at the Brookside Farm Museum in Niantic on Monday, June 3, 2024. (Sarah Gordon/The Day)

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Marjorie Meekhoff, president and founder of the nonprofit Pollinator Pathway East Lyme, pulls an invasive plant at the group's Roadside Native Test Plant site on Industrial Park Road on Monday, June 3, 2024. (Sarah Gordon/The Day)

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Pollinator Pathway East Lyme's Roadside Native Test Plant site on Industrial Park Road on Monday, June 3, 2024. (Sarah Gordon/The Day)

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Marjorie Meekhoff, president and founder of the nonprofit Pollinator Pathway East Lyme, pulls out mugwort, an invasive plant, at the group's Roadside Native Test Plant site on Industrial Park Road on Monday, June 3, 2024. (Sarah Gordon/The Day)
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A honeybee feeds from non-native catmint in the gardens at the East Lyme Community Center on Monday, June 3, 2024. (Sarah Gordon/The Day)
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Phragmites seed heads blow in the breeze as David Sagan, a private land biologist with the U.S. Fish & Wildlife Service, uses a Marsh Master to mow down phragmites in the Lord's Cove area of Lyme on Wednesday, March 8, 2017. (The Day file photo)

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By **Theresa Sullivan Barger, Special to The Day**



When East Lyme resident and master gardener Marjorie Meekhoff noticed native milkweed, goldenrod and little bluestem grass growing on a town-owned, roadside island in 2019, she asked the town's public works department to refrain from regular mowing.

These plants provide butterflies, bees and birds food, shelter and habitat to raise their young, she explained. The town department agreed. She formed the East Lyme Pollinator Pathway nonprofit group of like-minded gardeners in December 2020.

In the spring of 2021, the group obtained the town's permission to maintain the Industrial Park Road roundabout island. They removed invasive plants such as mugwort and began planting more native plants to see what would survive the harsh roadside conditions, making it a native plant test site.

Elsewhere, they planted a native flower meadow on private land and worked at the town library, community and senior center to remove invasives and plant native species. By August 2022, the Board of Selectmen had adopted a Pollinator Pathway proclamation encouraging residents to plant natives.

The East Lyme gardeners and gardeners in a dozen additional communities in southeastern Connecticut have joined the Pollinator Pathway — an international initiative to plant native perennials, shrubs, trees, grasses and vines to provide much-needed habitat and food for native bees, butterflies and birds.

The growing spread of invasive plants, the climate crisis, development, deforestation, agricultural intensification and the use of herbicides and pesticides has led to a drastic decline in all kinds of insects and been termed the “insect apocalypse,” wrote UConn entomologist and Professor David Wagner in UConn's Bug Week.

“Without soft-bodied insects, the world as we know it would collapse,” Meekhoff said. “That's one of the reasons I started the Pollinator Pathway.”

The sight of fireflies and butterflies that were routine in the 20th century has become a cause for celebration today. Gardeners like Meekhoff and others have seen more bees, butterflies and birds in their gardens after replacing invasive plants with natives.

Throughout the region, the state and the country, growing numbers of gardeners are replacing parts of their lawns with native plants, removing invasive plants such as burning bush and Japanese barberry from their yards and avoiding pesticides.

Demand for native plants has grown. Sales have spiked to the point where high-demand natives sell out early in the spring and one all-natives nursery in

Woodbury increased its stock from 20 at its founding 19 years ago to 375 different species.

Nearly 100 residents from East Lyme, New London, Old Lyme and Salem have taken the Pollinator Pathway East Lyme pledge to reduce their lawns, plant natives, avoid using pesticides, remove invasives and leave leaf litter and dead plant stems for hibernating insects, Meekhoff says. Those who take the pledge get a 10% discount on natives at Smith's Acres in East Lyme.

What are invasives and natives?

Invasives are plants brought to the United States from elsewhere, such as Europe or Asia, that spread aggressively through seeds, their roots or both, to the point where they out-compete native plants.

They lack natural predators to keep them in check outside of their native ranges, said Connecticut College Arboretum Horticulturist Anna Fialkoff. Since they don't have relationships with local organisms the way native plants do, she said, "They often don't provide as much food or nutrition for local wildlife. Over time, invasive plants create landscapes with far less biodiversity than native plant landscapes."

Many native plants and insects have co-evolved, like the monarch butterfly and native milkweed. Monarchs need milkweed plants to lay their eggs so they will grow into caterpillars that will eat the leaves, form a chrysalis and transform into a butterfly.

Just because something is a non-native plant doesn't make it an invasive — think daffodils, lilacs and peonies. And not all aggressive, fast-growing native plants are invasive — think poison ivy, Virginia creeper and pokeweed.

Native plants are the plants that grew here before settlers arrived, said Stefan Martin, conservation manager for Connecticut Audubon. The state's native wildlife and plants have a symbiotic relationship, and wildlife "needs these plants to fulfill their life cycle."

For example, the black swallowtail butterfly lays its eggs on spicebush, which naturally grows in woodland understories. Spicebush is declining in the wild because burning bush is out competing it, he said.

Invasive plants cause problems for several reasons: While bees may eat the nectar of Japanese knotweed, or birds may eat the berries of Asiatic (Oriental) bittersweet, wildlife such as deer, rabbits and bears won't eat most invasive plants, allowing them to overwhelm woodlands, conservation land, bike trails and roadsides.

While some bees and butterflies will visit the flowers, invasives are not an ideal food source. A butterfly eating the nectar of butterfly bush is like giving your kids a diet of Twinkies, Meekhoff said, lots of sugar with no nutritional value.

In addition, when birds eat berries, they deposit them elsewhere; and their poop serves as a little packet of fertilizer, which is why bittersweet, burning bush, Japanese barberry, Russian olive and autumn olive spread so abundantly.

One invasive perennial that's pervasive along the Interstate 95 corridor, the black swallow-wort, displaces milkweed and can confuse monarch butterflies, said Joshua Tracy, forester at the South Central Connecticut Regional Water Authority.

The milkweed caterpillar can only grow into a butterfly by eating milkweed plant leaves. When monarchs mistakenly lay their eggs on black swallow-wort, from the European milkweed family, the caterpillars start eating the leaves and cannot survive, he said.

Invasive common reed, known by its Latin name, phragmites, take hold in wetlands by creating a mat that doesn't allow anything else to grow. It crowds out natives that feed wildlife, such as cat-o-nine tails.

"In the coastal areas, some of the most stressed habitats are the tidal wetlands. They're already encroached by development and roadways; they're being pushed on the other side with sea-level rise," said Holly Drinkuth, river and estuary conservation director for The Nature Conservancy in Connecticut. "Not only are they (native plants) getting constrained and drowned, we don't have enough of a seed bank in the coastal area."

For example, she said, when phragmites out-compete cordgrass, there isn't enough cordgrass to move into an area overtaken by phragmites. Phragmites are especially hard to control because they spread through their seed and rhizomes, an underground stem that sends out roots and shoots. When rhizomes break off, they can travel in the tide or the river and take root elsewhere, she said.

Coastal native plants “are already being stressed out by having an increasing sea level,” Drinkuth said. “The more we can reduce the multiple stresses these habitats are having, the better off we are. Taking those really bad plants out of the mix is one step to really improving the ability of our native species to thrive.”

Many invasive plants sprout early in the spring before native plants and spread out, take up space and out-compete native plants for sunlight and water. One invasive, garlic mustard, releases chemicals into the soil that inhibit seed germination in other plants, especially spring ephemeral wildflowers.

Why should people care?

All life depends on insects. While non-native European honeybees are vital to crop pollination and their decline is well-known, native bee populations are also plunging, and they’re essential to the pollination of native plants.

Many native bees are in decline because of pesticide use. Three are especially at risk: the yellow-banded bumble bee (*bombus terricola*), listed as threatened, the rusty patched bumble bee (*bombus affinis*), listed by Connecticut as of special concern, and federally, as endangered and the cuckoo bumble bee (*bombus ashtoni*), listed as of special concern.

One square foot of grass treated with neonicotinoids at U.S. Environmental Protection Agency-approved levels contains enough neonics to kill 1 million bees, reports the National Resources Defense Council (NRDC). The synthetic, neurotoxic insecticides are used on lawns, gardens, golf courses, agricultural crops and flea and tick pet treatments.

Native plants are the foundation of local food webs, which have co-evolved with other organisms such as insects, birds and other wildlife for millennia, said Fialkoff, from the Connecticut College Arboretum. For example, native oak trees host more than 400 species of moths and butterflies, whose caterpillars eat their leaves.

Insects are a vital food source to birds, so fewer insects impact wildlife up the food chain.

“The birds,” Martin said, “can’t feed their chicks without caterpillars. Our caterpillars need those native plants.”

Nearly 100% of songbirds feed their young caterpillars and other insects, he said. Entomologist Doug Tallamy, author of “Nature’s Best Hope: A New Approach to Conservation That Starts in Your Yard” and “Bringing Nature Home: How You Can Sustain Wildlife with Native Plants,” said chickadees need 6,000 to 9,000 caterpillars to feed one clutch of chicks.

Multiple studies have shown “we’re down billions of breeding birds when compared to the 1950s,” Martin said. “Just about every species is in decline at a very rapid rate.”

When an invasive insect arrives, it can wipe out a plant species, such as the emerald ash borer that has decimated the state’s ash tree population and the invasive hemlock woolly adelgid that has killed much of the native hemlock trees.

The same is true for invasive plants because the predator they evolved with is back in the country where they came from, Tracy said.

The native blueberry bush has co-evolved with the native insects and diseases.

“There will never be a situation where the blueberry population becomes over abundant; if the caterpillar population gets too high, the blueberry population will diminish,” he said.

What can people do?

Residents and businesses can start by removing invasive plants on their property and replacing them with natives. The [Connecticut Invasive Plant Working Group](#) lists the state’s invasives and provides native alternatives. For example, replace the red fall foliage of the burning bush (winged euonymus) with a high-bush blueberry for fall color, spring flowers and summer blueberries.

In May, the state legislature added seven invasive plants to the state’s list of invasive plants banned for sale as of Oct. 1, including Japanese and Chinese wisteria, porcelainberry and, as of October 2027, callery pear. But there are still invasive plants on the list that are permitted to be sold in the state – burning bush and Japanese barberry.

Homeowners, business owners, municipalities and houses of worship can choose to avoid buying invasive plants, even if they’re still sold.

Residents who live by rivers, marshes, wetlands and Long Island Sound can help clean the water, reduce erosion and provide a habitat for bees, butterflies, birds and other pollinators by planting natives within the 300-foot setback from water, Drinkuth said. (Birds provide natural insect control if you invite them to your property with native plants, where they know they'll find food.) "Reducing lawn sizes using more native vegetation to grow near shoreline areas, including rivers, reduces the need for fertilizers, pesticides and herbicides, reduces runoff from storms and provides plenty of biodiversity," she said.

After they're established about two weeks after planting, native plants don't require watering.

"What you put on the ground is going to end up in our riverways and in Long Island Sound," Drinkuth said. "I just wish green lawns would go out of style like fur coats. They take a lot of time; they take a lot of money and they're not that good for the environment."

Martin suggests residents change their mindset so wealth is measured by how many birds and butterflies you can attract to your garden.

Native plants have grown here for millennia without human tending, so "they're meant for our climate," Tracy said. "They grow so much better. We'll get a much more diverse cohort of bees and butterflies and birds coming to our property."

Resources

Connecticut Invasive Plant Working Group. Tips on how to effectively remove invasives: <https://cipwg.uconn.edu/>

National Wildlife Federation. Type in your ZIP code for a list of native plants to fit your growing conditions: <https://nativeplantfinder.nwf.org/>

Xerces Society for Invertebrate Conservation and Invasive.org Provide localized resources, native plants and invasives lists and information: <https://www.xerces.org/pollinator-resource-center/northeast> and [Invasive.org](https://www.invasive.org)

Connecticut College Arboretum offers free guided tours of its native plant collection at 10 a.m. on the first Sunday of each month, May through October. The arboretum is open daily sunrise to sunset free of charge.

Comments are limited to 200 words in length.

Connecticut's worst invasive plants and natives that combat them



Echinacea, bee balm and other flowers blooming in reporter Theresa Sullivan Barger's all-native garden in Canton on Friday, July 12, 2024. (Courtesy of Glenn Barger)



A hummingbird hovers over native bee balm in reporter Theresa Sullivan Barger's garden in Canton, Friday, July 12, 2024. (Courtesy of Glenn Barger)



Native swamp milkweed, host plant to monarch butterflies and other pollinators, blooming in reporter Theresa Sullivan Barger's garden in Canton, Friday, July 12, 2024. (Courtesy of Glenn Barger)



Bittersweet, an invasive plant, grows through the rocks at the Brookside Farm Museum on Monday, June 3, 2024. (Sarah Gordon/The Day)
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Marjorie Meekhoff, president and founder of the nonprofit Pollinator Pathway East Lyme, points out little seedlings of the invasive barberry bush in the gardens at the East Lyme Community Center on Monday, June 3, 2024. (Sarah Gordon/The Day)
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Invasive mugwort is seen in the gardens at the East Lyme Community Center on Monday, June 3, 2024. (Sarah Gordon/The Day)
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Wineberry, an invasive plant, grows at the Brookside Farm Museum Monday, June 3, 2024.
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By **Theresa Sullivan Barger**, **Special to The Day**



IMMINENT
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Connecticut's worst invasives

Japanese knotweed

Oriental bittersweet

Japanese barberry

Multiflora rose

Mugwort

Garlic mustard

Autumn Olive

Common reed (phragmites)

Mile-a-minute vine

Black swallow-wort

Honeysuckle

Burning bush

Tree of Heaven

Japanese stiltgrass

Norway maple

Sources: Connecticut Invasive Plant Working Group's Top 10 invasive plants of concern in Connecticut; Victoria Wallace, UConn Extension educator; Ronna Stuller, co-founder, Riverside Park Conservancy, Connecticut College Arboretum.

Native plants that combat invasives

These natives spread through rhizomes, which are a stem-like, underground root system, or “volunteers,” which spread through seeds, via the wind or birds.

White snakeroot

Bee balm

Wild bergamot*

Wild geranium

Goldenrod (*Solidago bicolor*, *Solidago nemoralis*, and *Solidago sempervirens* grow well in sandy soil)

Common milkweed

Swamp milkweed

Tall coreopsis

Anise hyssop

Sunchokes

Virginia creeper

Jewelweed (shade plant)

*Can grow in sandy soils

Sources: Ronna Stuller, co-founder, Riverside Park Conservancy; Smith's Acres, Niantic; Earth Tones Natives, Woodbury.

More information

Booklet with color photos of Connecticut's worst invasive plants, how to identify and control them and native

alternatives: https://www.conservect.org/wp-content/uploads/2020/10/Invasives_guide_2020_web.pdf