

THE SCENT OF HOME SWEET HOME

HOW FRAGRANCE—AND THE WHITE FLOWERS THAT CARRY IT—GUIDE POLLINATORS BACK TO THE GARDEN

BY NANCY LAWSON

They're impossible to convey through magazine photos or plant labels. We can't record their sensory symphonies on our phones or create recipes for conjuring their magic. Often we don't even know they're there, even as they orchestrate hidden worlds of intricate relationships right under our noses.

Scientists use sophisticated tools to identify the chemical compounds of floral odor plumes, which influence plant–animal relationships in countless ways. But describing these shape shifters in more relatable terms most often involves vague adjectives: sweet, skunky, musky, fetid. A collective cultural memory often fuels the comparisons, as when a surprising number of visitors to my plant-filled habitat stop in their tracks, inhale wistfully and say simply, “It smells like my childhood.”

The fragrance of vibrant, buzzing life is an accidental delight for human friends passing by at the right time. But for animals, ever-changing flower scents are far more intentional draws, serving as welcome signs on the congested olfactory highway.

Our visually oriented species has long emphasized color over scent in creating wildlife gardens. Until relatively recently, studies of plant–pollinator interactions focused mainly on flower hue, size, shape, symmetry, and other visual traits. But floral odors are integral to foraging insects, some of whom follow their antennae miles to the source. It's a delicate dance, as plants carefully time emissions to lure effective pollinators without attracting attention from herbivores who would rather eat them whole.

A flower's complex mixture of volatile organic compounds can shift regularly based on climate, weather, available pollinators, peak bloom time, circadian rhythms, and a host of other factors. Different parts of a flower can have different odors, and some have scent markings to guide pollinators to nectar. Plants can change scents to appeal to a variety of insects, and insects size up odors to determine available inventory of floral rewards.

Perfuming the Wildlife Garden

For years, I ignored all this in favor of chasing elusive garden rainbows, focusing on the most colorful native flowers without considering their chemistry. I was biased against white, conflating it with Victorian rose gardens peopled by wealthy robber barons cavorting in moonlit courtyards. In my mind, it represented a kind of cloistered neutrality.

But something happened on the way to nurturing my now abundant wildlife gardens: White flowers insinuated themselves in the form of volunteer bonesets and black locusts, drawing a spectacular array of six-legged visitors. White flowers came with the wild plums, chokeberries, chokecherries, viburnums, and elderberries I'd planted to provide fruit for birds—and soon beckoned tiny native bees. Solitary pollinating wasps descended on the white-flowered native clematis, black cohosh, and summersweet shrubs, and tumbling ragdoll beetles showed up for the creamy blooms of sweetbay magnolia. Skippers and swallowtails dined on buttonbushes, and yucca moths scrambled to mate and lay eggs in yucca flowers.

By the time white flowers had made their way into every patch and corner, their allure was inescapable to me, too; to my surprise, most smelled delicious. Though a few sweetly scented colorful blooms graced our garden—pale pink common milkweed, yellow Carolina jessamine, purple woodland phlox, hot pink Virginia roses—the white ones, I realized, were dominating the floral scentscape.

Their connection to olfactory bliss wasn't immediately apparent, until it dawned on me that most of our light-colored flowers also feed moths at night. Moths' physiology and nocturnal foraging rely on strong, sweet scents and pale flowers with high contrast. While most of us sleep, these underappreciated pollinators answer perfumed invitations all over our landscapes and, according to recent research, pollinate flowers even more efficiently than bees.

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Nurturing the Scentscape for Pollinators

The outsized role of moths in pollination makes recent revelations about their response to floral odor disruptions even more concerning. A University of Washington study published last year found that nitrate radicals, pollutants found in vehicle emissions, degraded floral scents enough to cause a 70% reduction in hawkmoth visits to flowers, lower fruit set, and compromised plant fitness.

Moths aren't the only ones affected. Other studies have shown that diesel exhaust makes it difficult for honeybees to find flowers, fertilizer products cause avoidance behavior in bumblebees, and fungicide formulations interfere with bumblebees' ability to learn floral scents.

Eliminating as many of these unnecessary odors as possible could boost the natural scentscape. But helping pollinators cut through olfactory noise might require more concerted efforts. Strongly scented native plants—including roses, sages, mints, phloxes, and magnolias—extend a lifeline to insects. Dense patches of large-flowered species like coneflowers and sunflowers can provide extra visual cues they may need to come in for a landing.

Remembering that other animals have different ways of smelling, hearing, seeing, and being can also help us grow both our gardens and ourselves. My original biases against white would make no sense to a bee because, as University of Maryland associate professor Anahí Espíndola recently told me, “white is not real” when it comes to flowers. White flowers absorb ultraviolet light and reflect evenly across the human visual spectrum, so we can't perceive their true colors without special filters. But white flowers are strongly chromatic to UV-detecting bees—and in the case of my own habitat, also strongly aromatic, sensory beacons signaling to their ancient partners that it's time to come home. //

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WHITE ON WHITE

Yucca flowers open in the evening and emit sweet scents that lure yucca moths, their only pollinator.