

PACIFIC HORTICULTURE

CALIFORNIA DROUGHT

SUCCULENTS

BUTTERFLIES

DEMONSTRATION GARDENS

AN ORGANIC SAUDI FARM

ALWAYS LEARNING

SUMMER 2015

VOLUME 76 | NUMBER 03







WHERE ARE THE BUTTERFLIES?

Creating a Safe Haven for
Urban Lepidoptera

BY TRACEY BYRNE

THE PUGET SOUND REGION is home to 15 common butterflies, 14 of which are native species. Numerous species of native butterflies have become endangered in urban settings because of development, habitat fragmentation, and habitat degradation. It seems that community and backyard gardens could play a large role in providing much-needed habitat for urban butterflies, and many people are interested in creating butterfly gardens to attract them. What can you do to ensure that your butterfly garden is a safe haven for butterflies and other beneficial insects?

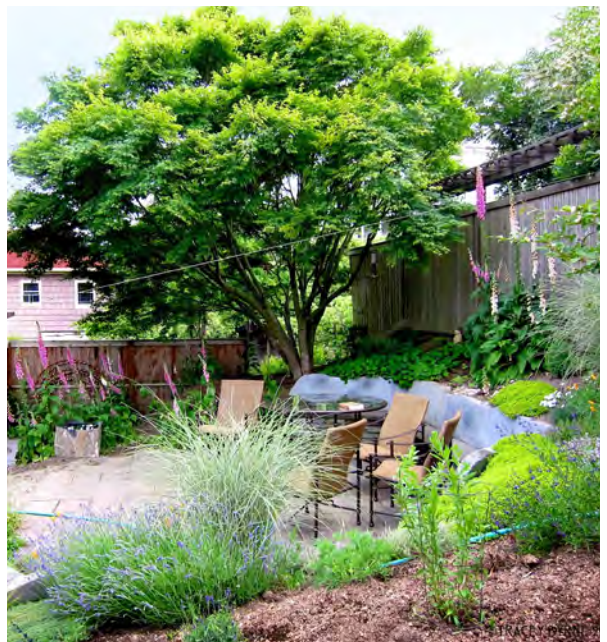
Echo Azure butterfly Photo: PNWnature via Dreamtime.com



ABOVE TOP: California poppies, borage, clover, chives, and other flowering plants provide a bountiful feast of pollen and nectar in the author's garden.

ABOVE: Evidence of a wildlife-friendly landscape.

Photos: Tracey Byrne



A comfortably furnished patio provides space for relaxation and observation; proof that there can be room for humans, too, in a wildlife-friendly landscape.

Butterflies belong to the family Lepidoptera, the scale-winged insect family that includes moths, butterflies, and skippers. They comprise about 17,000 of the 155,000 known species, and Lepidoptera live on every continent except Antarctica. Butterflies are charismatic insects and, as with the bees, people are becoming more aware that as pollinator habitat is disappearing, so are the butterflies.

Seattle Backyard Wildlife Sanctuary

Though there are 15 common butterflies in the Puget Sound ecoregion, I have only seen three in my yard and only the imported Cabbage White (*Pieris rapae*) is a regular. On occasion a Western Tiger Swallowtail (*Papilio rutulus*) flutters over but does not stop to dine, and Woodland skippers (*Ochlodes sylvanoides*) frequently enjoy our grasses and herbs. The lack of butterfly diversity surprises me, because over the last 20 years we have created a Backyard Wildlife Sanctuary that appears to have all the “right stuff.”

Regular visitors to our garden include five species of bumblebee, mason bees, honeybees, numerous moths, 25 species of birds, and countless other wild creatures. But, aside from the ubiquitous Cabbage White, rarely is a butterfly seen in our backyard habitat...so, what are we missing? Where are the butterflies? I wondered if this was typical for an urban garden and decided to cast my “butterfly net” a bit further afield.

My first visit was with Janice Murphy, Seattle University’s Integrated Pest Management specialist; Janice oversees SU’s 50 acres, which includes 14 gardens. SU has been chemical pesticide-free since 1979 and is an Urban Wildlife Sanctuary. I was dismayed to hear that the only butterfly regularly seen on the SU campus is the Cabbage White; in fact, no native butterfly sightings have been documented in SU’s Wildlife Garden or nectar patch. Janice was as baffled as I was, and we both were curious if this was happening in other urban areas.

Scientific Study Sleuthing

- In a 2010 study carried out in the Bronx and East Harlem, butterflies were counted in 18 community gardens over the course of three summers; over 3300 butterflies were tallied and 88 percent of them were Cabbage White butterflies. Unfortunately, and unsurprisingly, the invasive Cabbage White butterfly thrives in recently disturbed areas.



Painted Lady (*Vanessa cardui*) Photo: Derek Ramsey, via Wikimedia Commons

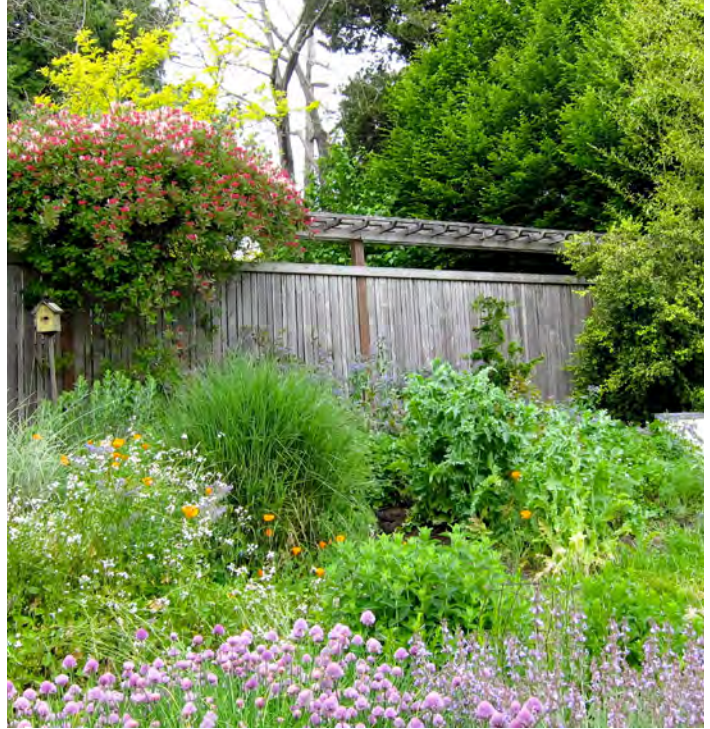
- In a 2004 California study of Pipevine Swallowtail butterflies (*Battus philenor*), researchers compared gardens to undisturbed natural sites to see which were more successful. They found that butterflies visited gardens that were well established, between 8 to 40 years old, but the survival of larvae was much lower than in natural sites. In fact, disturbingly, the evidence showed that *many gardens were acting as population sinks or “death traps” for the Pipevine Swallowtail, not as refugia.*
- A 2003 Pipevine Swallowtail study in the San Francisco Bay area found that, overall, butterfly species extinctions in San Francisco County are estimated to be as high as 43 percent. It was found that garden sites offered a smaller area of host plant coverage than a natural site, and that *supplemental watering* could affect egg survival. Notably, gardens planted in the last five years did not even receive butterfly visitation, and natural sites—in all areas tested—were always preferred.



ABOVE: Birds, like this robin and cedar waxwing, appreciate the fall feast offered by Washington Hawthorn (*Crataegus phaenopyrum*).

RIGHT: In addition to food, the author's landscape offers shelter and nesting sites for visiting birds and insects.

Photos: Tracey Byrne



Established Gardens as Refugia

In contrast to these studies, the nine-acre Hallberg Butterfly Gardens in West Sonoma County has been a sanctuary for the Pipevine Swallowtail for almost 100 years. The gardens include 80-year-old California Dutchman's Pipevine (*Aristolochia californica*), which is the only host for the larvae. Hallberg garden caretakers realized early on that in order to provide a safe haven for butterflies, plants must be available throughout the butterfly's lifecycle: egg, caterpillar, pupa, and butterfly. A critical habitat element to ensure safety is *undisturbed shelter*; this means that pruning, weeding, and tidying are done lightly, seasonally, and with extreme care.

When considering how to create urban butterfly refugia, it is important to take a long view on the process, as evidence shows that it is not as easy as "Plant it, and They Will Come." My question led me to discover information that I have not read in any butterfly garden manual. Though our garden is pesticide-free and has an abundance of native larval and host plants, that is not enough to provide safe haven for native butterflies—and the butterflies seem to sense it. This is important information for West Coast gardeners and designers wishing to create a butterfly garden, as it is highly likely that the majority of

butterflies visiting will be the Cabbage White. Butterfly gardens should be created with the intention of providing safe havens for native butterflies, but changes in practice must take place to ensure that our gardens do not become death traps for Lepidoptera.

Though it may seem obvious, it is not just about the butterflies.

Tracey Byrne is a photographer and naturalist with a passion for urban biodiversity and Backyard Wildlife Habitats.

Bibliography

Connor, E., Hafernik, J., Levy, J., Moore, V., & Rickman, J. (2003). Insect Conservation in an Urban Biodiversity Hotspot: The San Francisco Bay Area. *Journal of Insect Conservation* 6 p. 247-259

Levy, J. M., & Connor, E. F. (2004). Are gardens effective in butterfly conservation? A case study with the pipevine swallowtail, *Battus philenor*. *Journal Of Insect Conservation*, 8(4), 323-330.

Matteson, K., & Langellotto, G. (2010). Determinates of inner city butterfly and bee species richness. *Urban Ecosystems*



Western tiger swallowtail (*Papilio rutulus*) Photo: Kathy Zimmerman, via Wikimedia Commons

Eight essential elements for butterfly and pollinator friendly landscapes

1. *Plant native flowering plants in a sunny area.* Cluster native flowers in a variety of colors and shapes that bloom throughout the growing season.
2. *Don't forget to include caterpillar host plants.* Many butterfly caterpillars are entirely dependent on one specific host plant; providing proper host plants is critical.
3. *Place basking rocks in sunny areas.* Butterflies perch on stones, spread their wings, and soak up the sun to raise their body temperature.
4. *Provide wind shelter.* Shrubs, fences, and hedgerows create inviting microclimates that will attract butterflies to flutter, nectar, bask, mate, and lay their eggs.
5. *Encourage "puddling."* Many butterflies drink and get important trace minerals from small puddles; provide a shallow dish filled with damp sand or mud.
6. *Leave wild patches and overwintering sites.* Caterpillars and pupae will find overwintering and pupation sites in your leaf litter, mulch, woodpile, and tall grasses. Pruning, weeding, and tidying should be done lightly, seasonally, and with extreme care.
7. *Build fertile, well-drained soil.* Healthy soil is the foundation of a healthy garden ecosystem.
8. *No pesticides—ever!* Pesticides and herbicides are toxic to butterflies and other beneficial insects in all life-cycle phases. Encourage natural pest control.

Further Resources:

The Lifecycles of Butterflies, Judy Burris and Wayne Richards, Storey Publishing, 2006.

North American Butterfly Association, www.nababutterfly.com

"Butterflies and How to Attract Them" Washington Department of Fish & Wildlife
www.wdfw.wa.gov search: butterflies.

For additional resources and fact sheets and a link to a story about the Hallberg Butterfly Garden from the *Pacific Horticulture* archives visit www.pachort.org/UrbanButterfly.