

“Pocket” Habitats: The 2021 Howard County Butterfly Survey



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The “Pocket Habitat” Perspective

8-Year Survey Information

Participation

Private Landscapes

Public Parks & Other Areas

Species Status

Private Yards as Pocket Habitats

Coordinators: Linda Hunt and Kevin Heffernan

Co-sponsored by the Howard County Bird Club and the Howard County Department of Recreation and Parks, Originated by Richard H. Smith, Jo Solem, and Sue Muller



Snakes in a Basket ...



The 1940's –
a pocket of
development
embedded in nature

The 2000's –
pockets of nature
meandering through
development



... Hawks on the Chimneys

A “pocket (butterfly) habitat” –

any area smaller than typical, created, or occurring naturally, in a larger environment. May support many butterfly species, a single species, or none. (Linda’s definition)



Pocket Gardens



All Pocket Habitats



Pocket Park

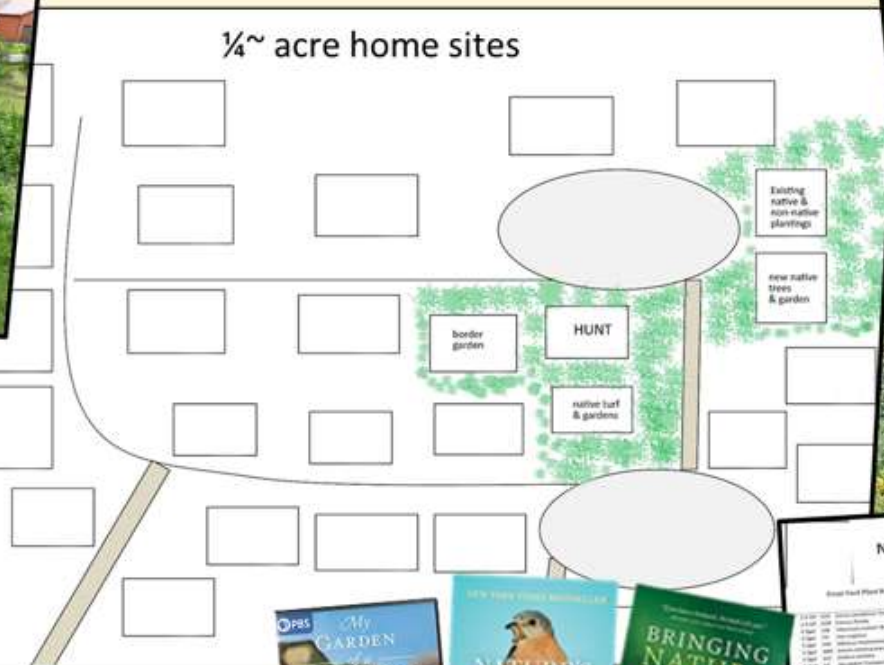


Pocket Meadow

Plant and they will come

Applying the "Pocket Habitat" Perspective

Create Pocket Garden Corridors



"Clover and fine fescue. Fine fescue has longer and narrower shoots and sinks longer roots into the ground than other types of lawn grass, thereby needing less water and is more sustainable. Does not need to be fertilized. It also may pull in and sink carbon from the air. The clover pulls in nitrogen and puts it in the ground. The trick is to get them to take. I'm having trouble around the street. Maybe due to road salt. ??????" David Alexander



Find the habitat "niche,"
find the butterfly

Applying the "Pocket Habitat" Perspective

Identify Habitats – Warfields Pond Park



44 butterfly species
67 surveys, 5 surveyors
(Also 150 bird species)



The 2014-2021 Survey --- What have we learned?

Individuals and small groups continue their interest and participation in butterfly conservation surveys.

The status of most HOCO species can be updated: occurrence, flight time, host plants and locations.

Information on skippers and rare species may be dependent on surveyor habitat location and identification skills.

HOCO private gardens and meadows with unique plants may be the only existing pockets of habitat attractive to some species.

Identification and preservation of pockets of specialized habitat on public lands may be necessary for the survival of some HOCO species.

An 8-Year Overview – Participation & Results

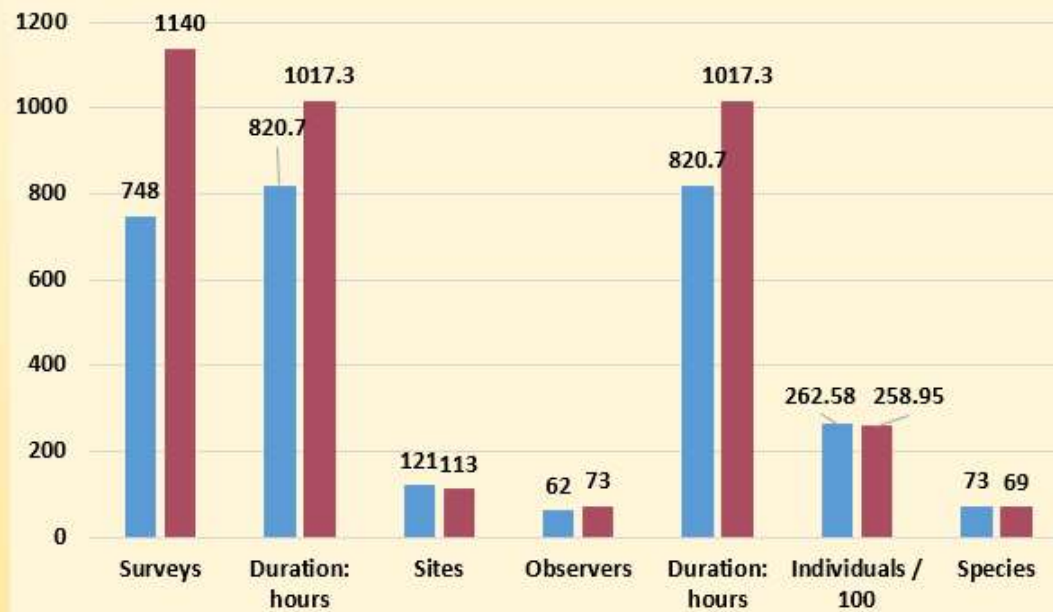


2021 Contributors: Annette Allor, Karan Blum, Mary Lou Clark, Liz Debaugh-Stone, Amy Fine-Dugas & Tyler Dugas, Robyn Evans, Timothy Foard, Pam Franks, Patricia Greenwald, Kevin & Karen Heffernan, Laura Heffernan, Lowell Albro-Heffernan & Tim Albro, Gayle, Bobbie, & Bill Hill, Linda Hunt, Kathy & Jim Kaberle, Clayton Koonce, Sydney K, Kathy Litzinger, Janet Lydon & Tim Thompson, Mary Maxey, Grazina & Mike McClure, Woody Merkle, Helen & Eric Metzman, Sue Muller, Michael Osborne, Bonnie Ott, Howard Patterson, Pam & Mike Perna, Paul Petkus, Sue Probst, Kate Reilly, Russ Ruffing, Ann Russo, David Ryan, Kurt Schwarz, Sharon Smith, Jo & Bob Solem, Susanne Stahley, Ann Strozyk, Dick Tufts, Robin Todd, Kristin Trouton, Kelsey Wellons, Barbara White, Jim Wilkinson, Katherine Willson, Janice Winter. **MPEA:** Jeff Claffy, Allen Dupre, Cheryl Farfaras, Ryan Harris, Stephanie Hickey, Steve Luke, Jessica Mousley, Kaytlin Powell, Glen Shaffer, Gabrielle Turner. **Robinson Nature Center:** Janine Grossman, Jane Hershey, Mary Lenahan, Heidi Osterman, Ally Rogan, Susan Tucker, Kate Tufts, Lisa Young



	2014	2015	2016	2017	2018	2019	2020	2021	Total	2021 Rank
Observers	22	48	44	48	59	62	48	73	116	1
Surveys	372	696	715	870	958	748	706	1144	6209	1
Duration(min.)	19970	19437	35924	50196	55787	49242	40684	61027	332267	1
Species	68	70	75	70	71	73	69	69	80	6
Butterflies	10360	17570	21622	25053	25245	26258	20828	25897	172833	2

Comparison of 2021 to Pre-pandemic 2019 Results



Highlights From the 2021 Butterfly Survey

Thank you observers!

Highest totals of observers, surveys, and duration of time in 2021

Second highest number of individual butterflies seen

- 69 species seen; no new species for the survey this year
- High counts for 13 species and second highest count for 14 more (39%)
- Low count for 5 species and second lowest for 7 more (17%)
- Did not find Dusted Skipper for third year in a row
- Mt. Pleasant added a new species, Tawny Emperor. List now totals 67 species.
- Great Spangled Fritillary numbers continue to be low
- American Copper and Common Checkered Skipper are species to be watched
- Eastern Comma had a huge spring, matching last years count by mid-April
- Found ~7.7x more Silvery Checkerspots & 3.4x White M Hairstreaks than previous peak year
- New initiatives at RNC and MPEA this year
- Last butterfly of the year contest
- Will publish flight times, early/late dates, overwintering strategies, and host plants this winter
- Working with Bee City to enhance habitat, educate, and promote preservation of bees and butterflies



Tawny Emperor, Mt. Pleasant
(Annette Allor)

Survey Locations 2014-2021

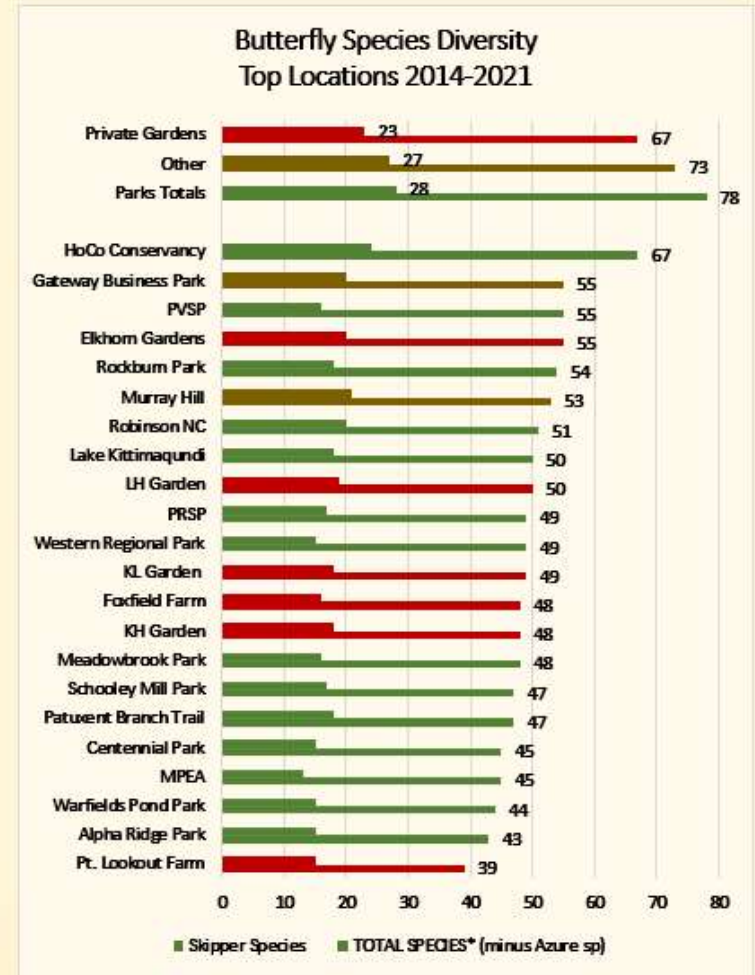


Identifying Species Diversity

Locations with the greatest species diversity have a wide variety of plants and habitats. However, many locations lack specific host plants, or pocket habitats, attractive for the more specialized species.



5 pocket habitats & 44 species, incl. 14 skippers; Am. Copper, Coral Hairstreak, Red-banded Hairstreak, Juniper Hairstreak, Gray Hairstreak; 11 Brushfoots, & Appalachian Brown

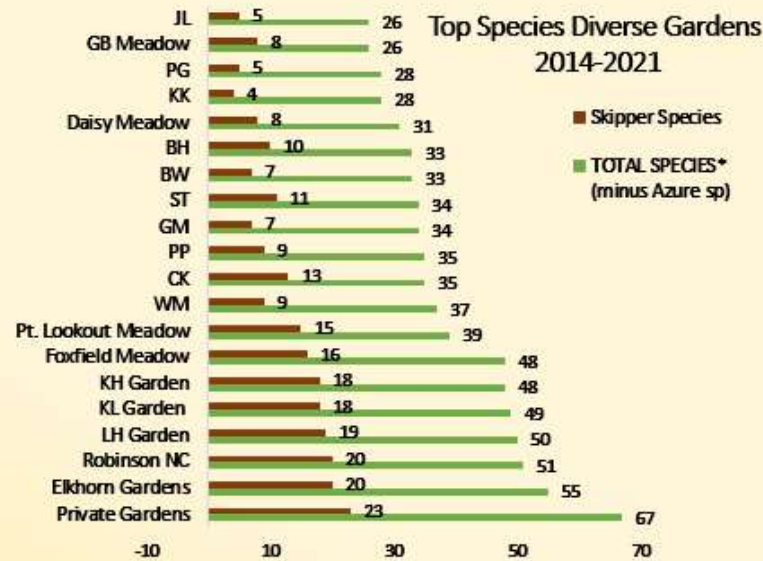


Private Residential Landscapes

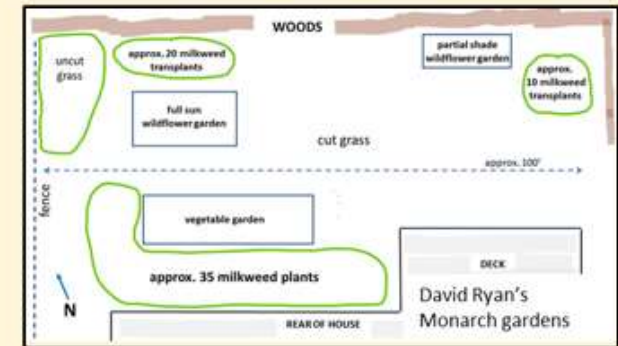
Provide Locations with Enhanced or Created Nectar & Host Plant Habitat



Fox Field Farm meadows



Kevin Heffernan's gardens

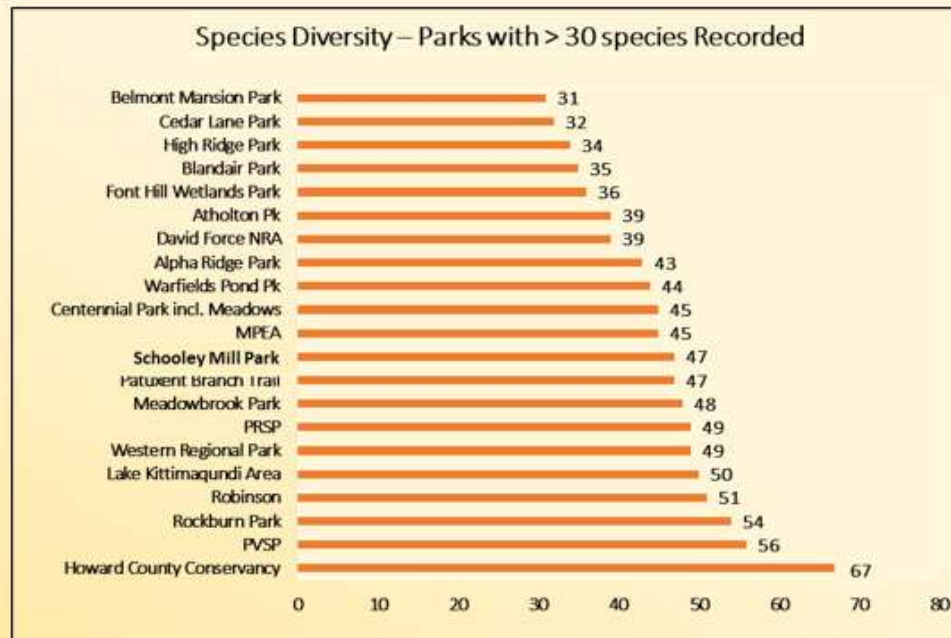


**88 Gardens (2014-2021) Many gardens lack specific host plants or locations attractive for the more unusual species:
18 Gardens with Rare & Unusual Species**

Pipevine Swallowtail 12 (Barbara White 96)	American Copper 2 (Merkle 16; Hill 1)	Am Snout 4 (Litzinger 50, Hunt 1, Orr 1, Ziolkowski 1)
Zebra Swallowtail 7 (Litzinger 17, Lydon 3, Muller 2)	Coral Hairstreak 1 (Tufts 1)	Viceroy 3 (Litzinger 4, Merkle 1, Heffernan 1)
Giant Swallowtail 7 (McKitterick 7, McClure 4, Hunt 2)	Banded Hairstreak 4 (McClure, Muller, Probst, White)	Hackberry Emperor 1 (Greenwald 5)
Checkered White 1 (McClure 1)	Juniper Hairstreak 2 (Perna 1, Constantino 1)	Tawny Emperor 3 (Litzinger 59, Heffernan 2, Hunt 1)
Falcate Orangetip 1 (Kaberle 3)	White M Hairstreak 6 (Litzinger 6, Hunt 1, Heffernan 1, McClure 1, Koonce 1, Tucker 1)	

Parks & Wildlife Management Areas

Provide Locations with –
Preserved Pockets of Specialized Habitat
Enhanced & Created Pockets of Meadow Habitat



2021 Special Projects – Assessing Habitat Needs



MPEA Survey

9 surveyors 92 surveys 1177 butterflies
39 species (incl. 62 Northern Pearly-eye)

Butterfly surveys were conducted to update the MPEA species list and to study the resource needs of species of interest. The goal was to use this information to determine what actions were needed to provide habitat for a diversity of species.



2021 Robinson Master Naturalist Surveys

8 surveyors 31 surveys 1153 butterflies
34 species (incl. 4 White M Hairstreaks)

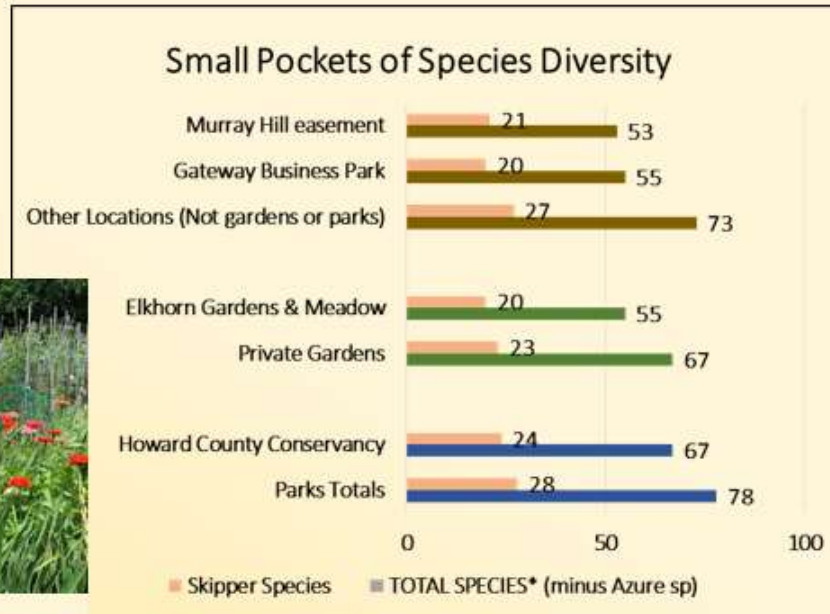
“My goal was to help Robinson attract and support a greater diversity of butterflies. Using the HoCo survey results from prior years, some research, and talking with different butterfly aficionados, I put together a list of butterflies which could likely be encouraged at Robinson by adding specific additional host plants in suitable locations.” Ally Rogan

Public & Private “Other” Areas

Provide Locations with
Pockets of Native Habitat
Pockets of Nectar & Host Plant Habitat



Community Gardens,
Utility Easements



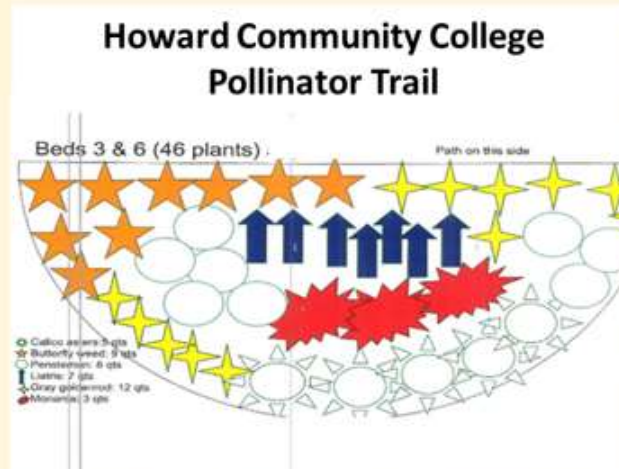
store front gardens



roads & parking lots, water
management areas, edges & mediums

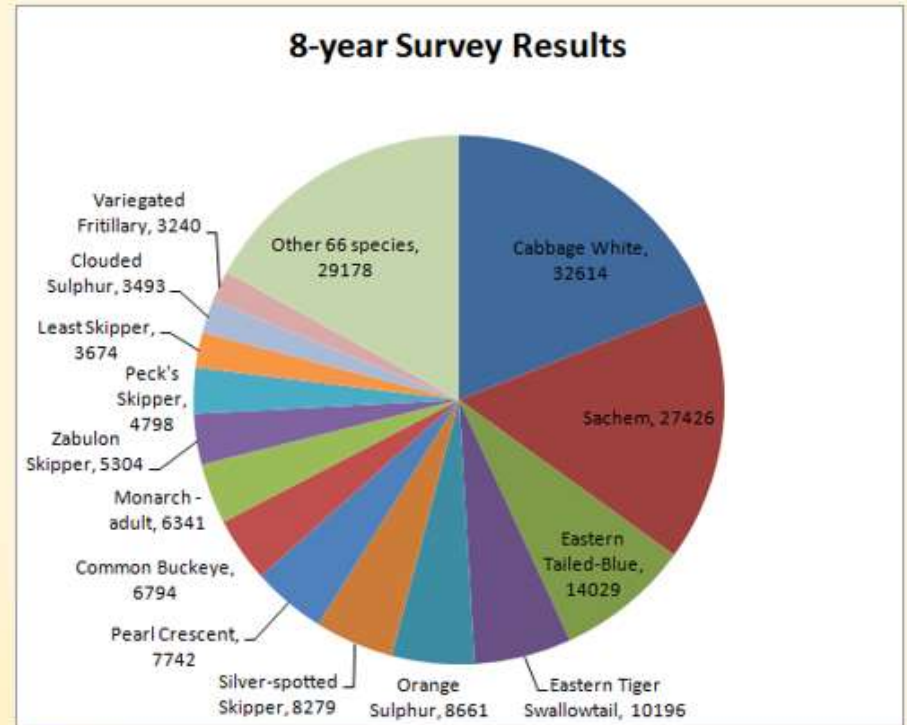
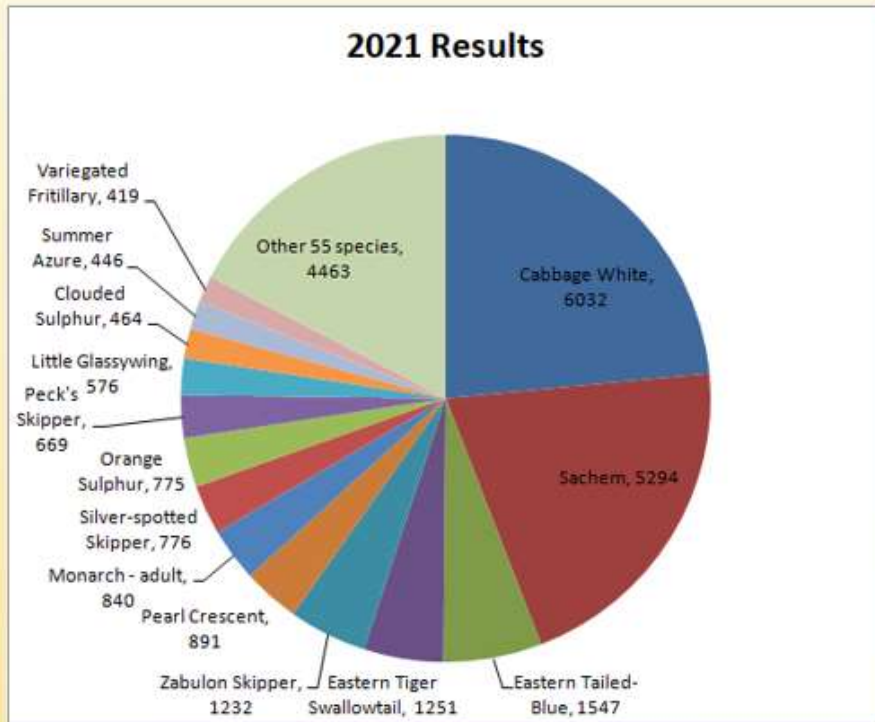
2021 Special Projects – Creating Pollinator Gardens

Designed by Susan, Ana Maria, Kate. Contact:
Bob Marietta & Belinda Green
Planted on Howard Community College
Sustainability Day, October 20, 2021



Species Status: Most Numerous Species

- 12 of the top 14 are the same in 2021 as over the 8-year survey
- Little Glassywing and Summer Azure replaced Common Buckeye and Least Skipper in 2021
- In 2021, the number of Cabbage Whites seen exceeded the total of the bottom 58 species



Number of Species Found Each Year

- 61 of the 80 species seen in the survey have been found in all eight years

	2014	2015	2016	2017	2018	2019	2020	2021
Clouded Skipper (7)		X	X	X	X	X	X	X
Cloudless Sulphur (7)		X	X	X	X	X	X	X
Harvester (7)	X	X	X	X	X		X	X
American Snout (7)	X		X	X	X	X	X	X
Silvery Checkerspot (7)	X	X	X		X	X	X	X
Long-tailed Skipper (6)			X	X	X	X	X	X
Eastern Pine Elfin (6)	X	X	X	X		X	X	
Tawny Emperor (6)			X	X	X	X	X	X
Dusted Skipper (5)	X	X	X	X	X			
Giant Swallowtail (4)	X		X	X		X		
Little Yellow (4)		X	X			X		X
Mulberry wing (3)		X	X			X		
Checkered White (2)			X		X			
Hayhurst's Scallopwing (1)		X						
Brazilian Skipper (1)						X		
Dainty Sulphur (1)						X		
Bronze Copper (1)			X					
Spring Azure (1)	X							
Henry's Elfin (1)					X			
Total for Year	68	70	75	70	71	73	69	69

Species Status: Highest Annual Count in 8-Years



Specialized Host Plant Pocket Habitat

- Highest annual total during the first seven years of the survey was 32 in 2020. It was the Butterfly of the Year last year. In 2021, the total was 246.
- Kathy Litzinger found 215 on these at a single location, Illchester Elementary. She found 110 on a single day on Jerusalem Artichoke, a new host plant.
- Unfortunately, the area was obliterated in the past month and we are not sure if the Jerusalem Artichoke will come back up next year, a problem that we see too often.
- How many other pockets of diversity like this are there in Howard County?

Silvery Checkerspot



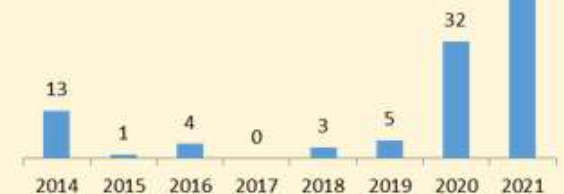
Susan Tucker



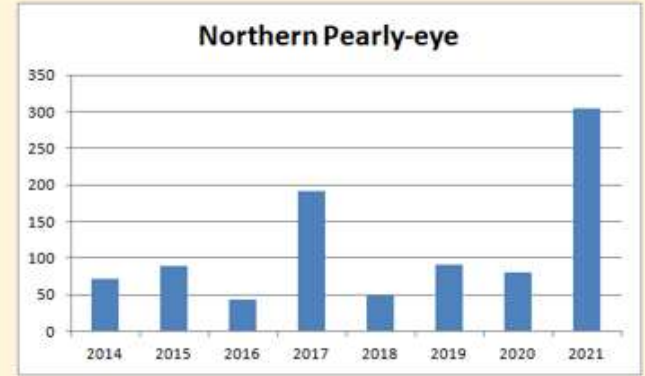
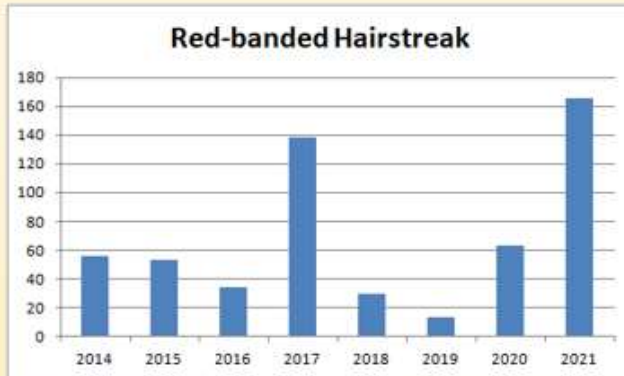
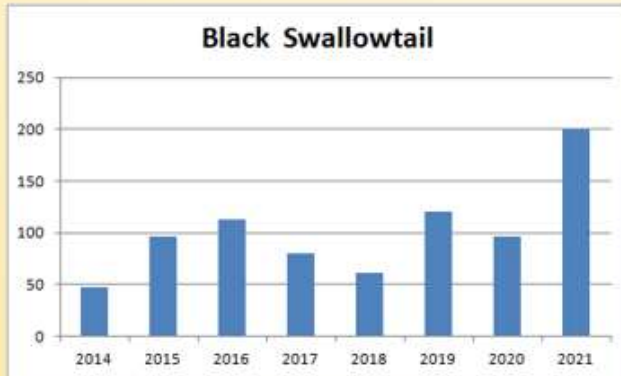
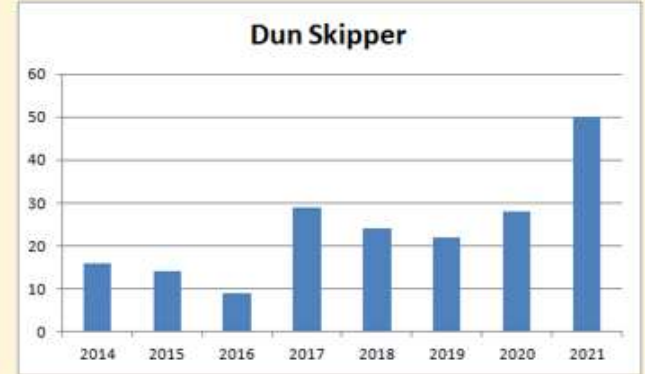
Annette Allor



Jerusalem Artichoke
(Kathy Litzinger)



Other Species with Significantly Higher Count



Species Status: Lowest Annual Count in 8-Years



Silver-spotted Skipper

- has dropped three years in a row
- could be year to year variation
- need to key an eye on this



Crossline Skipper

- always has low numbers
- almost for sure an ID issue



American Copper

- has dropped five years in a row
- single location with large numbers may not have been surveyed as frequently
- need to watch this species



Great-spangled Fritillary

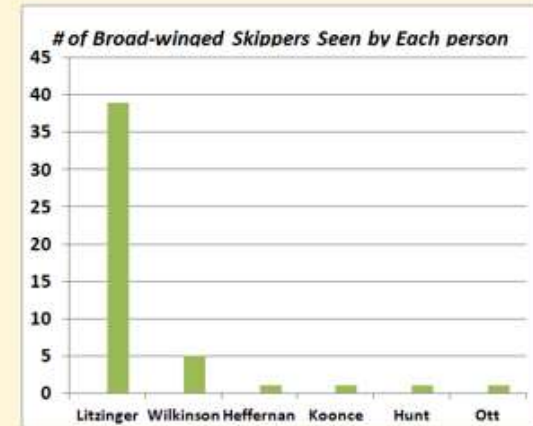
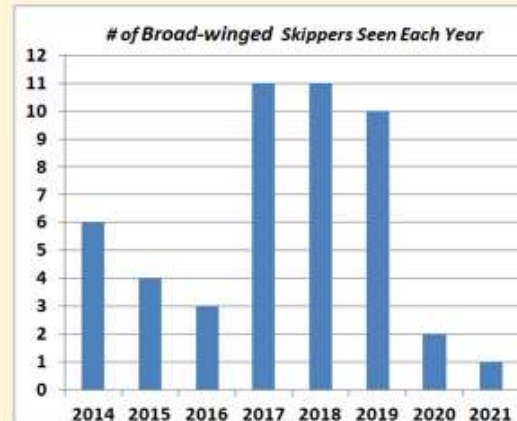
- last 3 years ~ 20-25% of 2018
- problem not just local
- could be global warming disrupting timing of caterpillar coming out of diapause vs. violet emergence
- Schooley Mill Park is a hot spot



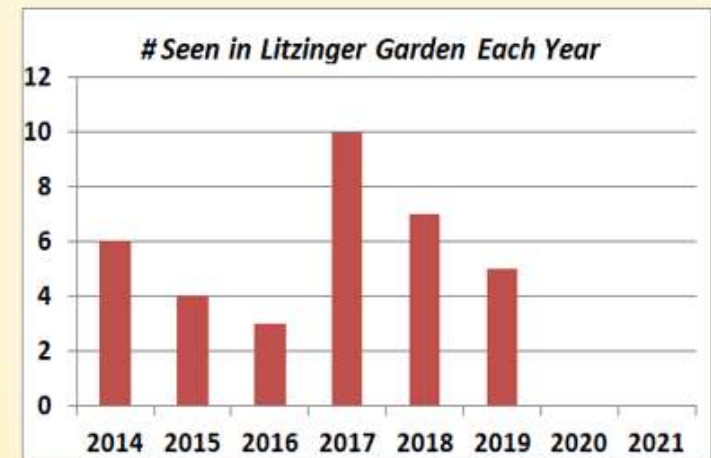
Broad-winged Skipper

- single largest colony habitat lost
- see next slide for details

Drop in Broad-winged Skipper sightings over the last two years

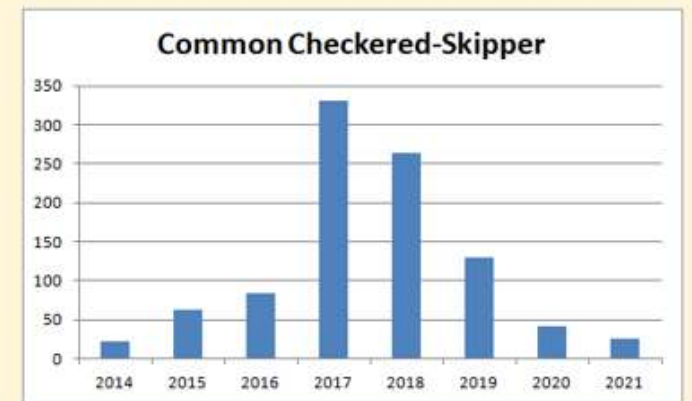
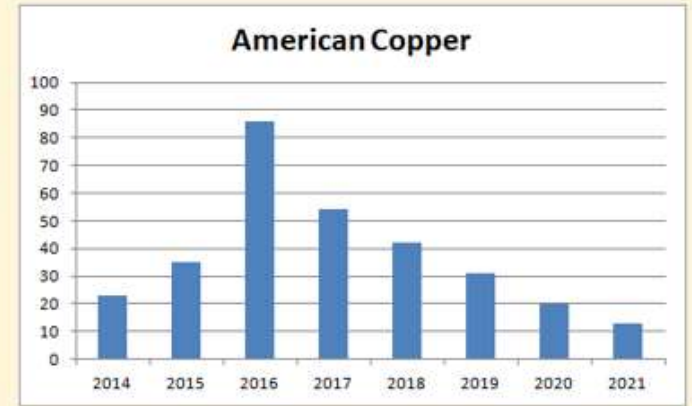


- Broad-winged Skippers have adapted to using phragmites as a host plant
- Location with phragmites near Kathy's house was destroyed in 2019/2020
- Other eight locations have produced 13 Broad-winged Skippers in eight years
- Also somewhat of an ID issue



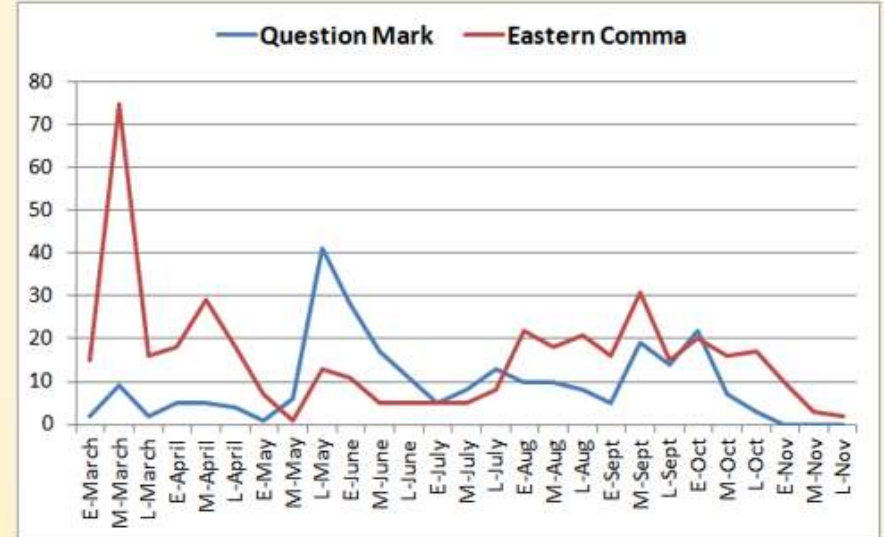
Species of Possible Concern

- American Copper and Common Checkered-Skipper numbers have dropped for five and four consecutive years respectively
- Both of these species are found in higher numbers in the western part of the county where fewer people are surveying.

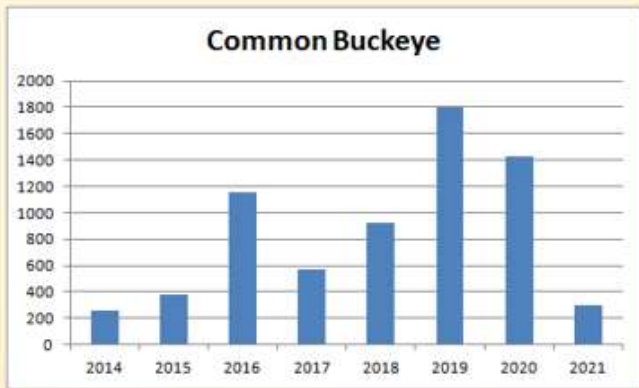


Early Spring Anglewings – Comma or Question Mark?

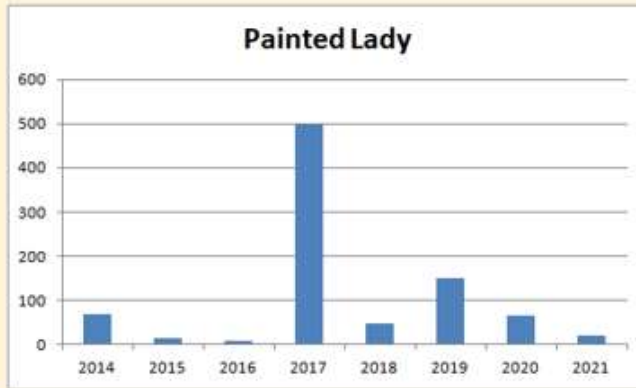
- Is an early spring punctuation mark butterfly more likely to be a Comma or a Question Mark?
 - Answer is Eastern Comma by a wide margin
 - Some Question Marks migrate south for the winter and some stay
- Last year we only had 21 Eastern Commas for the year
 - In 2021, we had 79 for the year and 21 by April 15th
- Each of the three overwintering butterflies, Comma, Question Mark and Mourning Cloak had the 2nd highest number of sightings in the survey this year



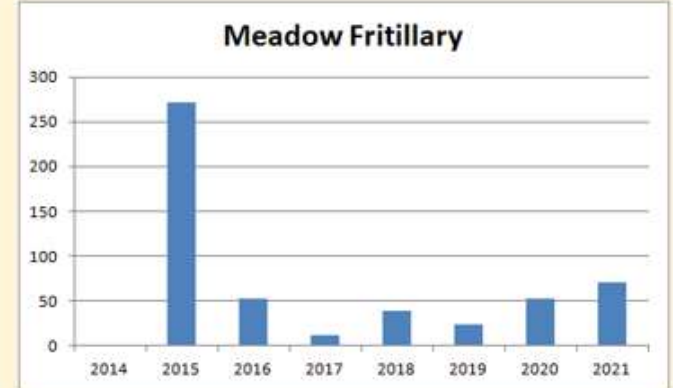
Species Status: Year-to-Year Variability



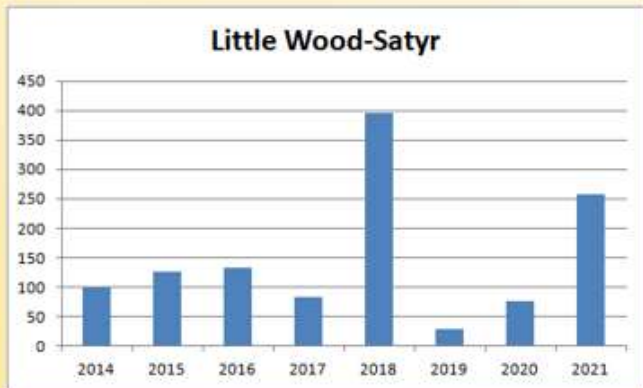
Not sure. Year to year variation?



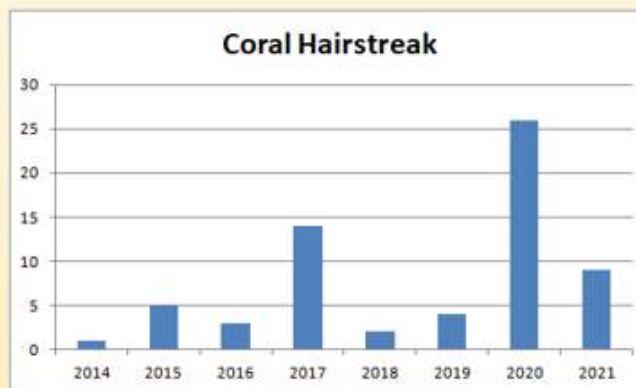
2017 was a big migration year



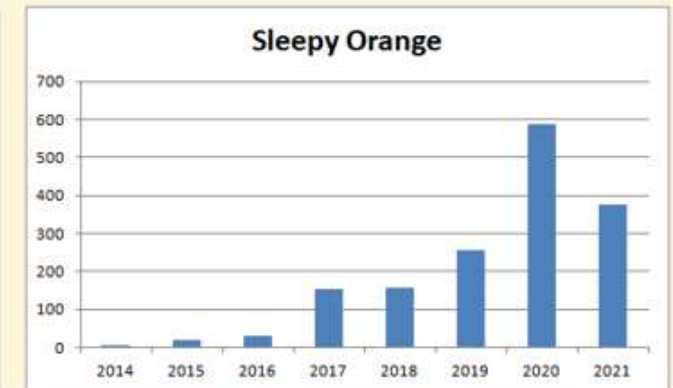
2015 was an irruption year



Who catches them at emergence?

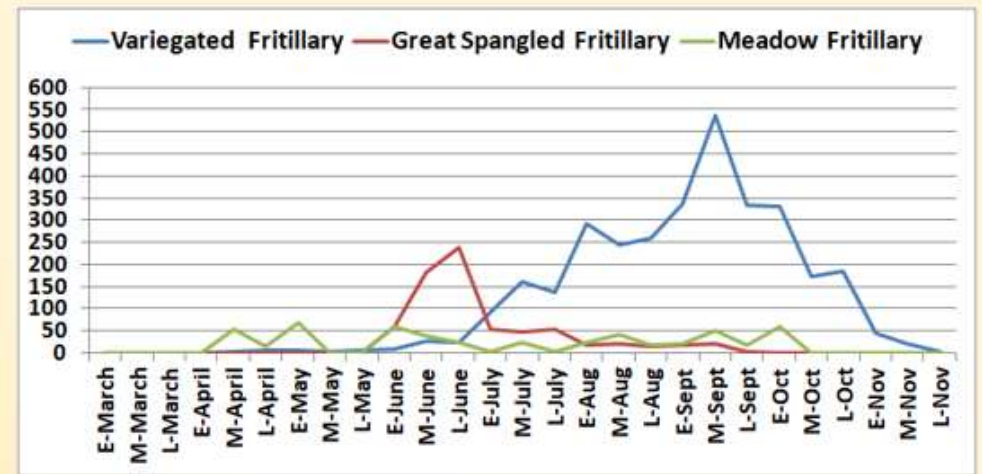
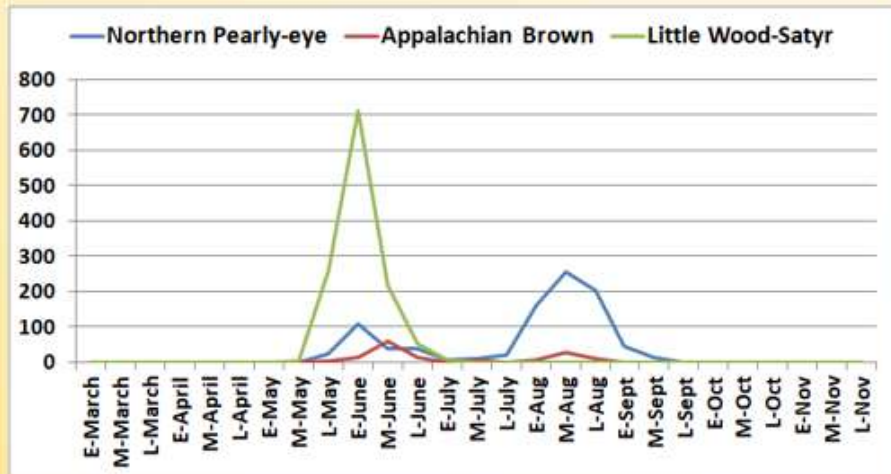
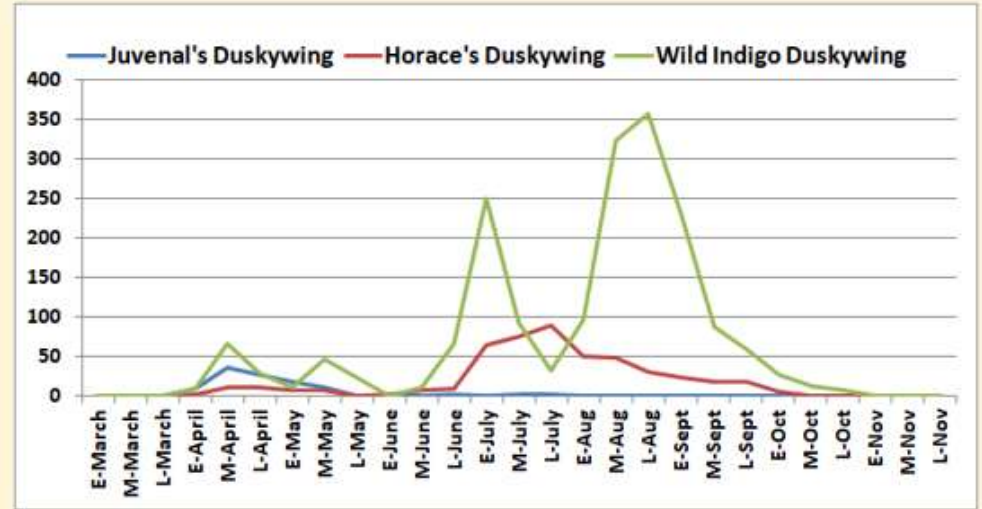
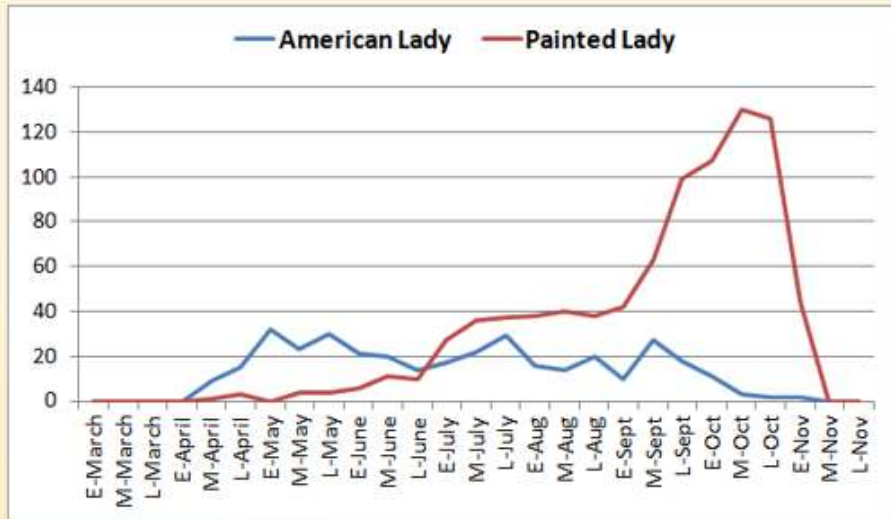


Several people counting same CHs at Mt Pleasant in 2019



RNC took out much of their Senna

Comparing Like-species Flight Times



What can you do at home to help butterflies?

Plant a pollinator garden

- try to use >80% native plants (our insects are unable to eat non-native plants because they don't have the adaptations to eat them)
- see garden templates for sample designs for different sun and soil conditions
- start with the power pollinator plants

Power Pollinator Plant Families

Symphotrichum	Aster
Solidago	Goldenrod
Eupatorium	Joe Pye Weed, Thoroughwort, Boneset
Asclepias	Milkweed
Monarda	Wild Bergamot, Bee-balm
Coreopsis	Coreopsis
Lobelia	Cardinal Flower
Penstemon	Beardtongue
Pycnanthemum	Mountain Mint

Sunny & Moist Garden for Pollinators

These plants were selected for their ability to withstand moist conditions and for their pollinator value.

Obsidian Plant <i>Physocarpus opulifolius</i> Easy to establish and maintain, this plant has smoothened-like, pink to lilac flowers that bloom throughout summer, providing nectar for butterflies.	Common Shasta* <i>Fluentea coccinea</i> This low-growing plant blooms with delicate blue flowers in the spring. Flowers attract small butterflies, little carpenter bees, and green metallic bees.	Butterfly Milkweed* <i>Asclepias tuberosa</i> Long-blooming, deer-resistant plant, and larval host to the monarch caterpillar. Its vibrant orange flowers are a great nectar source for bees and butterflies.	Eastern Columbine <i>Aquilegia canadensis</i> Striking red and yellow flowers bloom in late spring, attracting hummingbirds and insects. Larval host to columbine duskywing and spring azure butterfly.	Eastern Redbud <i>Cercis canadensis</i> An important early food source for pollinators, this small tree is a great substitute for non-native cherry trees. Does well in full sun to part shade.	Heber's Flower* <i>Hebeclivus nuttallii</i> This plant blooms over a lengthy period, summer to autumn. Native bees, honeybees, wasps, flies, butterflies and beetles seek the nectar and pollen.	Blazing Star* <i>Liatris spicata</i> Bevy-purple spiky flowers bloom in summer, attracting bees, butterflies, hummingbird moths and hummingbirds.	Blue-eyed Grass <i>Sisyrinchium angustifolium</i> This low growing grass-like plant is a miniature member of the iris family. It is a great substitute for liraps and can form thick stands over time.
OP 6 plants	CB 40 plants	BM 7 plants	EC 7 plants	ER 1 plant	HF 6 plants	BS 3 plants	BEG 12 plants

Bloom Times: Apr May Jun Jul Aug Sep Oct

* Deer-resistant, resistant to withstanding some browsing.

Note: This design is flexible based on available space. To make this garden smaller, reduce the number of plants per species.

More info on Bee City: <https://www.beechoward.com/feed/pollinators/>

Featured Pollinator: Leafcutter Bee/Megachile
 Bees in this family carry pollen on the underside of their fuzzy abdomens rather than their legs. They use their large mouth parts to collect their preferred nesting material—leaves! A handful of Megachile species are specialists and feed only on a particular genus of plants. Most use a variety of plants for nectar and pollen. Leaves from the redbud tree make excellent nesting material.

What can you do at home to help butterflies?

Plant a pollinator garden

- See pollinator plant spreadsheet on HCBC website for garden design information
 - has 125 herbaceous plants, ~70 trees and shrubs, 6 vines and 11 grasses
 - has lots of references and notes
 - can be sorted to emphasize plants / conditions that you are looking for
 - Mt. Cuba Center just released a similar spreadsheet

Flowers		Bloom time		Color, Height, Spread			Nectar, Host, Native, H-birds			Perennial, Biennial, Annual		Soil		Sun		Deer Damage Level			Pollinator Value			Larval host	Comment									
Latin Name	English Name	Bloom start	Bloom end	Color	Height	Spread	Native	Nectar value	Host Plant	Hummingbirds	Perennial	Biennial	Annual	Wet	Moist	Dry	Full	Part sun	Shade	Rarely	Seldom	Occasionally	Frequently	Resistant	Very high	High	Medium	Low	PSU Top 20			
Actaea racemosa	Common Black Cohosh	6	8	White	4-7'	2-4'	Y	Y	Y	Y	P			M																	Host for Spring Azure.	Hummingbirds; flowers have odor that repels some insects; nectar source for sweet and leaf-cutting bees, beetles and flies.
Agastache foeniculum	Anise hyssop	6	9	Lavendr to purple	2-4'	1.5-3'	N	Y	Y	Y	P			M	D	F	P							X								Special Value to native bees, bumble bees and honey bees; upright, clump-forming perennial of the mint family; is a wonderful accent when covered with bottlebrush blossoms and a cloud of butterflies; flowers are pollinated primarily by various types of bees including honeybees, bumblebees, Halictid bees, digger bees, leaf-cutting bees and masked bees; flowers are also visited by pollinating flies, butterflies, skippers, moths and the occasional hummingbird; is used as a butterfly nectar plant or as part of a grouping or mass planting; plants provide fragrance, showy blooms, and are valuable components of wildlife, wildflower, or butterfly gardens or meadows.
Agastache scrophulariifolia	Purple Giant Hyssop	7	9	Purple	4-6'	1-2'	Y	Y	Y	Y	P			M		F	P							X	X						Host for Summer Azure and two moths.	Special Value to native bees, bumble bees and honey bees; long bloom time in combination with their being nectar-rich makes them highly attractive to butterflies, hummingbirds and other pollinators; flowers are cross-pollinated primarily by honeybees, bumblebees, digger bees, leaf-cutting bees, Halictid bees, and Masked bees, which seek nectar or pollen; rated as very high pollinator value in NRCS study;
Allium cernuum	Nodding Onion	6	8	Pink	1-1.5'	.25-.5'	Y	Y	Y					M	D	F	P							X							Special value to native bees; bulb, member of the lily family; rock gardens, border fronts, cottage gardens or naturalized areas; nectar and pollen of the nodding flowers attract primarily bees, including honeybees, bumblebees, Anthophorine bees, and Halictid bees; plants usually go dormant in summer after blooming and leaves disappear until cool weather returns; city of Chicago gets its name from the Algonquin Indian name for this plant, "chigagou".	

What can you do at home to help butterflies?

Landscape for caterpillars

- A single pair of breeding chickadees must find 6,000 to 9,000 caterpillars to rear one clutch of young (Doug Tallamy, University of Delaware)
- Consider planting the “Keystone trees, shrubs and plants” (see next slide)
- Consider planting the host plants of the survey butterflies:
 - **Purpletop grass** (Common Wood Nymph, Little Glassywing, Crossline , Hobomok, Zabulon & Broad-winged Skippers)
 - Jerusalem Artichoke, Wingstem, Cutleaf Coneflower, New York Ironweed (Silvery Checkerspot)
 - **Hackberry tree** (Hackberry & Tawny Emperors, American Snout, Question Mark, Mourning Cloak)
 - Little Bluestem (Crossline, Dusted, and Swarthy Skippers, Common Wood Nymph)
 - **Blue, Yellow or Striped Violet** (Great Spangled, Variegated and Meadow Fritillaries)
 - Maryland Senna (Sleepy Orange, Cloudless Sulphur, Little Yellow)
 - **False Nettle** (Red Admiral, Question Mark, Eastern Comma)
 - Parsley, Dill, Fennel, Golden Alexander (Black Swallowtail)
 - **Pipevine** (Pipevine Swallowtail)
 - Pawpaw (Zebra Swallowtail)
 - **Milkweeds** (Monarch)



Sleepy Orange mating (Kevin H)



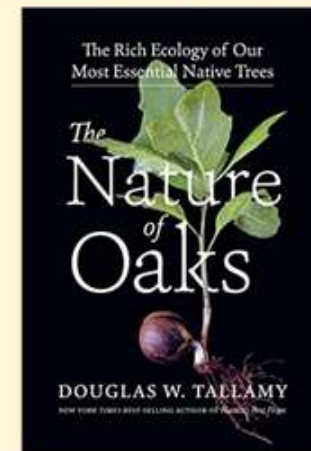
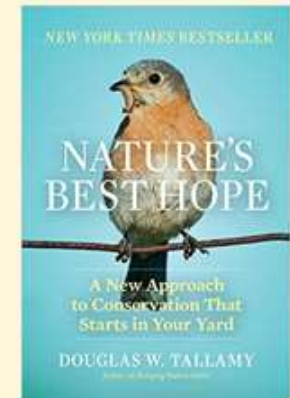
Cloudless Sulphur on Maryland Senna (Kevin H)



Mourning Cloak ovipositing on Hackberry tree (Kathy Litzinger)

Keystone Trees, Shrubs, and Herbaceous Plants

Data from Doug Tallamy's Research on Lepidopteran Use of Native Plants					
Woody Plants			Herbaceous Plants		
Common Name	Genus	# B/M Species	Common Name	Genus	# B/M Species
Oak	Quercus	534	Goldenrod	Solidago	115
Black cherry	Prunus	456	Asters	Aster	112
Willow	Salix	455	Sunflower	Helianthus	73
Birch	Betula	413	Joe pye, Boneset	Eupatorium	42
Poplar	Populus	368	Morning glory	Ipomoea	39
Crabapple	Malus	311	Sedges	Carex	36
Blueberry	Vaccinium	288	Honeysuckle	Lonicera	36
Maple	Acer	285	Lupine	Lupinus	33
Elm	Ulmus	213	Violets	Viola	29
Pine	Pinus	203	Geraniums	Geranium	23
Hickory	Carya	200	Black-eyed susan	Rudbeckia	17
Hawthorn	Crataegus	159	Iris	Iris	17
Spruce	Picea	156	Evening primrose	Oenothera	16
Alder	Alnus	156	Milkweed	Asclepias	12
Basswood	Tilia	150	Verbena	Verbena	11
Ash	Fraxinus	150	Beardtongue	Penstemon	8
Rose	Rosa	139	Phlox	Phlox	8
Filbert	Corylus	131	Bee balm	Monarda	7
Walnut	Juglans	130	Veronica	Veronica	6
Beech	Fagus	126	Little bluestem	Schizachyrium	6
Chestnut	Castanea	125	Cardinal flower	Lobelia	4



What can you do at home to help butterflies?

Leave the leaves!

- At least **57 species of butterflies** in the county overwinter in the egg, caterpillar and chrysalis stages. **Most overwinter in the leaves.**
- *Butterflies and bees have to bridge the fall to the spring successfully to thrive*
 - *leaving the leaves and stalks is just as important as planting and nurturing natives*
 - Leaves are not litter. They are food and shelter for butterflies, bees, moths and more.
 - Preliminary results of a U of MD study show that the **number of emerging moths and butterflies are reduced by about 67 percent in areas where leaves are removed**
 - You tend your garden and avoid pesticides. You give them flowers and a place to nest. Then you throw out the butterflies that you worked so hard to attract.
- Leaves also provide effective mulch and additional insulation against bitter cold weather that can protect newly planted perennials



Luna moths and swallowtail butterflies disguise their cocoons and chrysalises as dried leaves, blending in with the “real” leaves.

Great spangled fritillary and woolly bear caterpillars tuck themselves into a pile of leaves for protection from cold weather and predators.



Red-banded hairstreaks lay their eggs on fallen oak leaves, which become the first food of the caterpillars when they emerge.

What can you do at home to help butterflies?

Lawns – how can we do better?

We've all heard the negatives:

Lawns are monocultures: a biological desert

Lawns are the largest irrigated crop in the United States

- now occupy 45.6 million acres, or 23% of urbanized land, 3 times the size of New Jersey
- lawn irrigation on the east coast of the United States accounts for 30% of water use

Americans use 600 million gallons of gasoline every year in lawn maintenance activities.

- one hour of grass cutting equals 100 miles worth of auto pollution.

Lawn care requires many chemical pollutants and toxins.

- these end up in our streams and waterways; fish and aquatic life are poisoned and killed
- 40-60% of fertilizer ends up in surface and groundwater, contaminating them with excess nutrients

What can you do at home to help butterflies?

Lawns - make the best ecological use of your yard (from easiest to hardest)

- Mow the whole lawn less frequently (every 2 to 3 weeks) and leave the weeds
 - recent study explored effect of different lawn mowing frequencies:
 - lawns mowed every other week: bee abundance increased
 - lawns mowed every three weeks: >2x the number of flowers, increased bee diversity, lowered overall bee abundance versus the every-other-week strategy
- Mow to a height not less than 3.5"
- Mow part of your lawn rotating which part so part of it is always longer
- Reduce the size of your lawn by converting it to a pollinator garden, meadow, or ground cover a little bit at a time

Each of these results in less water, gasoline, chemical usage, and time, and more flowers, bees and butterflies



State Legislation: Low-Impact Landscaping

Maryland HB 322 went into effect October 1, 2021.

- The law codifies the right to have a pollinator/habitat gardens and specifically encourages attracting wildlife and pollinators.
- The law says that HOAs cannot require homeowners to plant turfgrass and “may not impose or act to impose unreasonable limitations on low-impact landscaping.”
- The law defines “low-impact landscaping” as:
 - “Bio-habitat gardens and other features designed to attract wildlife”
 - “Pollinator gardens and other features designed to attract pollinator species”
 - “Rain gardens and other features that use natural biological principles to return rainwater to the soil and to filter rainwater of excess nutrients; and
 - Xeriscaping and other forms of landscaping or gardening that reduce or eliminate the need for supplemental water from irrigation.”
- A Maryland HOA spent \$100,000 trying to destroy this Howard County pollinator garden. Homeowners Janet and Jeff Crouch fought back, saved their garden, and inspired the passage of a state law in the process.



What can you do at home to help butterflies?

Reduce mosquito spray and insecticide usage!

Sprays are chemical insecticides called pyrethroids:

- **pyrethroids used to kill mosquitoes kill all insects** (fireflies, butterflies bees, beetles, true bugs, moths, dragonflies, etc.)
- Synthetic pyrethroids are similar to naturally-occurring substances (in chrysanthemums) but are more toxic & last longer in the environment
- They typically respray every 21 days

Alternatives to spraying:

- regularly remove or drain sources of standing water
- Use Bti mosquito dunks (naturally occurring bacterium found in soils. It contains spores that produce toxins that specifically target and only affect the larvae of the mosquito, blackfly and fungus gnat)
- using repellents containing DEET or oil of lemon eucalyptus
- wear long sleeves

For some people, a mosquito-free yard is worth the cost of some “by-kill.” But we should make the decision to spray our yard informed of the potential costs as well as benefits.

Insects such as fireflies, butterflies and bees are in trouble. Decreasing the amount of spraying is one thing we can do to help them.



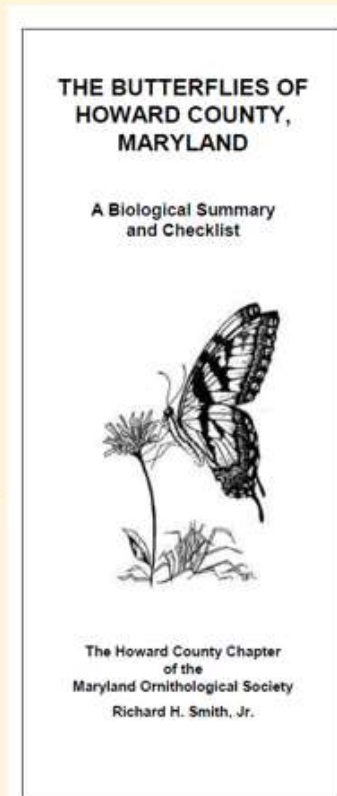
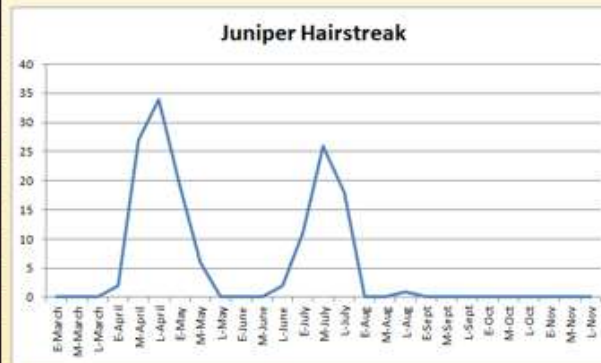
Some Bee City Accomplishments Since September, 2019

Webpage on LiveGreenHoward	Habitat sign designed and printed
Facebook page	Ordered three National Bee City street signs
Newsletter	Trees for Bees giveaway
Six Pollinator Garden templates	Pollinator garden at Long Reach Village Center
Templates for Cul-de-sacs	Pollinator garden at Howard Community College
Hosted seven events during 2020 Pollinator Week	Creating Mowing best practices
Hosted eight events during 2021 Pollinator Week	Creating herbicide and pesticide best practices
List of local native plant suppliers	Dandelion contest
Official Pollinator Plant of Howard County contest	Talk by Doug Tallamy
Habitat registration form	Talk by Heather Holm
Native plant giveaway for 5th graders	Table at RNC Native Plant sale
Meadow installation at Rockburn (3.0 acres)	Table at HCC Meet the Pollinator Event
Meadow installation at Belmont (4.5 acres)	Table at HCC Sustainability Day
Pushback on mosquito spraying initiative	Initiative emphasizing native bees vs honey bees

Information that we plan to make available

- Flight times diagrams
- Early and late dates
- Overwintering strategies
- Host plant information
- Update Dick Smith's "Butterflies of Howard County"

	Early	Late
Pipevine Swallowtail	4/29/2017	11/16/2020
Zebra Swallowtail	3/28/2016	10/1/2018
Black Swallowtail	4/11/2017	10/28/2014
Giant Swallowtail	8/27/2014	10/2/2019
Eastern Tiger Swallowtail	4/1/2016	10/15/2020
Spicebush Swallowtail	4/9/2017	10/20/2017
Checkered White	9/12/2016	10/10/2018
Cabbage White	2/23/2017	11/25/2019
Falcate Orangetip	3/30/2020	5/22/2015
Clouded Sulphur	3/29/2018	12/27/2015
Orange Sulphur	2/25/2017	12/27/2015
Cloudless Sulphur	5/29/2019	11/26/2019
Little Yellow	8/31/2015	9/25/2016
Sleepy Orange	4/8/2020	11/18/2021
Dainty Sulphur	9/18/2019	10/4/2019



Overwintering Strategies	Egg	Caterpillar	Chrysalis	Adult
	Hobomok Skipper		X	
Zabulon Skipper		X		
Broad-winged Skipper		X		
Dun Skipper		X		
Dusted Skipper		X		
Pipevine Swallowtail			X	
Zebra Swallowtail			X	
Black Swallowtail			X	
Eastern Tiger Swallowtail			X	
Spicebush Swallowtail			X	
American Copper		X		
Bronze Copper	X			
Coral Hairstreak	X			
Banded Hairstreak	X			
Question Mark				X
Eastern Comma				X
Mourning Cloak				X

Photos from Participants



Silver-Spotted, Peck's and Zabulon
Skippers (Clayton Koonce)



Hobomok Skipper (Annette Allor)



Long-tailed Skipper (Linda Hunt)



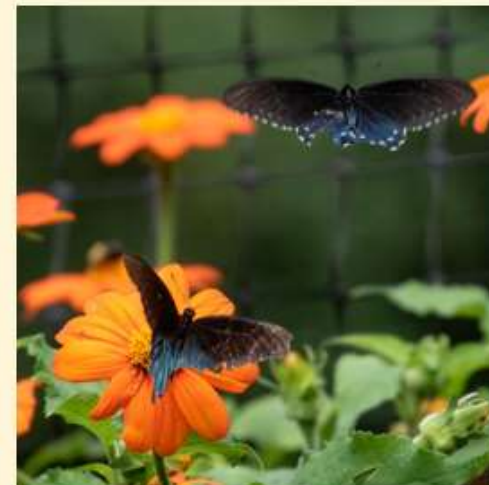
Common Checkered-skipper
(Karan Blum)



Great-spangled Fritillary (Grazina and Mike McClure)



Red-banded Hairstreak (Annette Allor)



Pipevine Swallowtail (Kevin H)

Photos from Participants



Eastern Comma (Kevin H)



Tawny-edged Skipper (Annette Allor)



Variegated Fritillary (Susan Tucker)



Black Swallowtail (Ann Russo Herron)



Falcate Orangetip (Jim Wilkinson)



Juniper Hairstreak (Kathy Litzinger)



Banded Hairstreak (7/21/21) (Grazina and Mike McClure)



Clouded Skipper (Jim Wilkinson)



Monarch (Heidi Osterman)

Photos from Participants



Duskywing species (Kelsey Wellons)



Meadow Fritillary (Kristin Trouton)



Viceroy (Ann Russo Herron)



Queen Mark (Kelsey Wellons)



Ocola Skipper (Clayton Koonce)



Pipevine Swallowtail (Kathy Litzinger)



Gray Hairstreak (Bill Hill)



Eastern Tailed-blue (Linda Hunt)



Painted Lady (Annette Allor)

Photos from Participants



Mourning Cloak (Annette Allor)



Southern Broken-dash (Linda Hunt)



Common Sootywing
(Kathy Litzinger)



Appalachian Brown (Bill Hill)



Juvenal's Duskywing (Bill Hill)



Eastern Tailed-blue
(Kevin H)



Red Admiral (Linda Hunt)



Cloudless Sulphur (Two versions)
(Annette Allor)



Harvester (Annette Allor)

Caterpillar / Chrysalis Photos



Sleepy Orange caterpillar on Senna
(Annette Allor)



Sleepy Orange just emerging from chrysalis
(Kathy Litzinger)



Question Mark caterpillar on
False Nettle (Kevin H)



Variegated Fritillary chrysalis (Kevin H)



Snowberry Clearwing caterpillar on
Coral Honeysuckle (Kevin H)



Sleepy Orange chrysalis with
butterfly about to emerge (Kevin H)



Hackberry Emperor eggs and caterpillars
on Hackberry tree (Bonnie Ott)



Mourning Cloak emerges from chrysalis
(Kathy Litzinger)



Pipevine Swallowtail emerging from chrysalis.
(Barbara White)

One Last Example of a “Pocket Habitat”

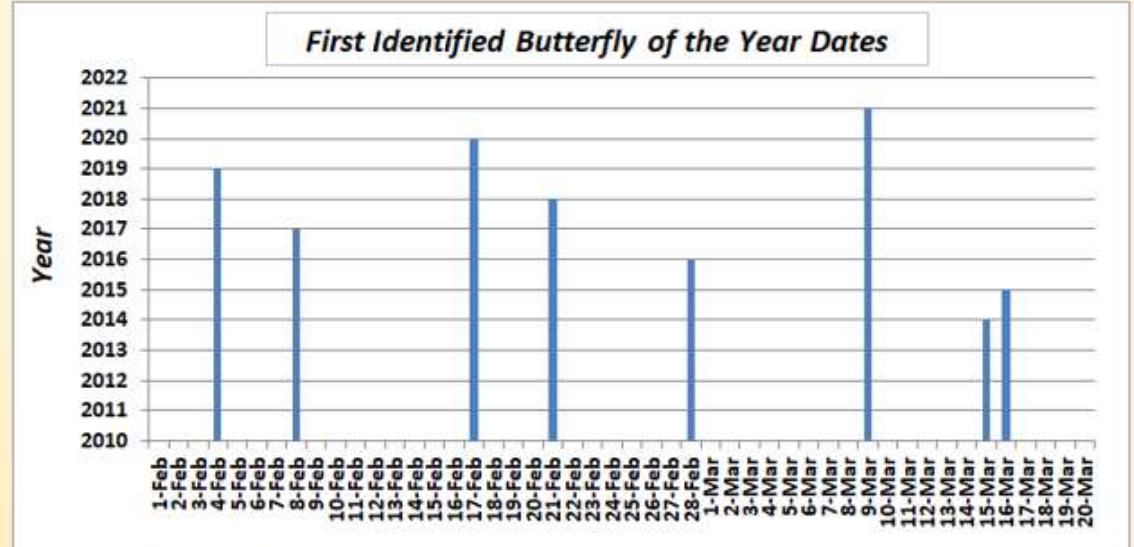


First Butterfly of the Year

- Three butterflies were seen on March 9th, all anglewings
 - The Question Mark pictured below was found by Eric Metzman at MPEA
 - An Eastern Comma was seen by Steve Luke at River Hill High School
 - Bonnie Ott had an unidentified anglewing at Henryton
- An additional seven Eastern Commas were seen on March 10th
- Chart shows dates of the first identified butterfly sighting for each of the eight years of the survey
- Anglewings flying can be difficult to ID whether it's an Eastern Comma or a Question Mark
- Earliest sighting date of an unidentified butterfly was on January 12th, 2020 by Bonnie Ott
- What is today's date???



Question Mark seen by Eric Metzman at MPEA on March 9th, 2021



Last Butterfly of the Year Contest

Runner-up Late Sightings

December 3 – Bonnie Ott
(Orange Sulphur at Alpha Ridge Park)

December 1 – Pam Perna
(Orange Sulphur at Western Regional
Park).

November 18 – four-way tie between
Bill Hill – Sleepy Orange and Variegated
Fritillary;

Clayton Koonce - Orange Sulphur &
Monarch (previously latest monarch was
11/17/2015);

Karan Blum – Orange Sulphur, Variegated
Fritillary & Eastern Comma;

Bonnie Ott – Orange Sulphur



The 2021 Last Butterfly of the Year contest winners are **Amy M. Fine-Dugas** and her son **Tyler Dugas**. They reported an Orange Sulphur at Centennial on December 16, 2021. They will receive a copy of *Butterflies of the Mid-Atlantic* by Robert Blakney and Judy Gallagher.



Embrace the “wild in your garden”

- *Your yard will be an oasis for bees, butterflies and birds in your neighborhood*
- *Register your garden with Bee City and receive a garden sign*
- *Report your butterfly sightings to the Butterfly Survey*
- *Sit back and enjoy the show*



Thank you, Volunteers!

→ Silvery Checkerspot
on *Rudbeckia laciniata*
Pam Perna's Garden
Woodbury, 7/29/20