

4/7/20 "Just had my first snout in the yard....WooHoo. Bring the butterflies on! Had to go to the store this morning and it's just crazy how empty everything is. Was lucky to be able to get most of what I needed. Tried for Trader Joe's again, and each time there is a line of 13+ people. May try for a rainy day and the senior hour at 8. Hope to do better at that time." Kathy Litzinger

*American Snout
Ellicott City 4/4/20
Kathy Litzinger*



Butterflying during a Pandemic:

The 2020 Howard County Butterfly Survey

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

Coral Hairstreak, Mt. Pleasant, Annette Allor 6/21/2020

The Question was Asked

Are we doing the survey?



In March, we stayed home & counted butterflies.

Then, we walked about our neighborhoods & counted.

Eventually, we went wherever no one else went,
and we continued counting.....



Mar 13, 2020 The VP wetland had an emergence already. The azures were bright. Photo of one with wings closed at rest. Clayton Koonce

3/13/2020 Allen Lewis had an Azure as well about three days ago. Kevin



Azure species
John Harris 3/20/20



Azure species
Columbia 3/13/20
Clayton Koonce

Apr 7, 2020. A tiger. Early. Neat! Send it my way! Linda It was on my bluebells, and would have made a glorious photo. But my camera was inside... John McKitterick (Picture 4/21/13 L. Hunt)



4/7/20 Meg and Tabby, Karen and I went to Mt. Pleasant yesterday to take a walk and to look for a Falcate Orange-tip, a butterfly species that, to my knowledge, has not been recorded there before. Sure enough we found one near the Hodge Podge Lodge. That brings the total number of species recorded there to 61, which I believe, is the largest list for anywhere in the county. Thought that you would like to know. Kevin Heffernan



Winged Frigatefly
John McKitterick's yard
2/17/20

Apr 29, 2020 Hi! I just saw this while it in the garden! It's such a pretty Jade green color! Do you know what it is? Julie Costantino

Julie, Congrats. That is a Juniper Hairstreak, an uncommon butterfly in Howard County. That is an awesome find....Do you have Red Cedar (or Junipers) nearby? That is their host plant. We are trying to find new locations for the uncommon butterflies and this is certainly a new location. Nice photos as well. Kevin Heffernan



Juniper Hairstreak
4/29/20
Julie Costantino

Yay! That is exciting!! The credit should go to my son Logan who spotted it while we were gardening :) There are a few red cedars behind our townhouse. Julie

FOY 2020 HOCO Butterfly John McKitterick



Ernstia Götarna
Sondra Hill Park
Sondra Hill 4/20/20



Ernstia Götarna
Sondra Hill Park
Sondra Hill 4/20/20



Juniper Hairstreak
Elkridge, 4/29/20
Julie Costantino

At this point I am about 97.3% feral and will not be able to be integrated back into society.

And we completed the 7th year of our Survey.

2020 Results

48
Observers

128
Locations

706
Surveys

40,684
Minutes

20,828
Butterflies

71
Species

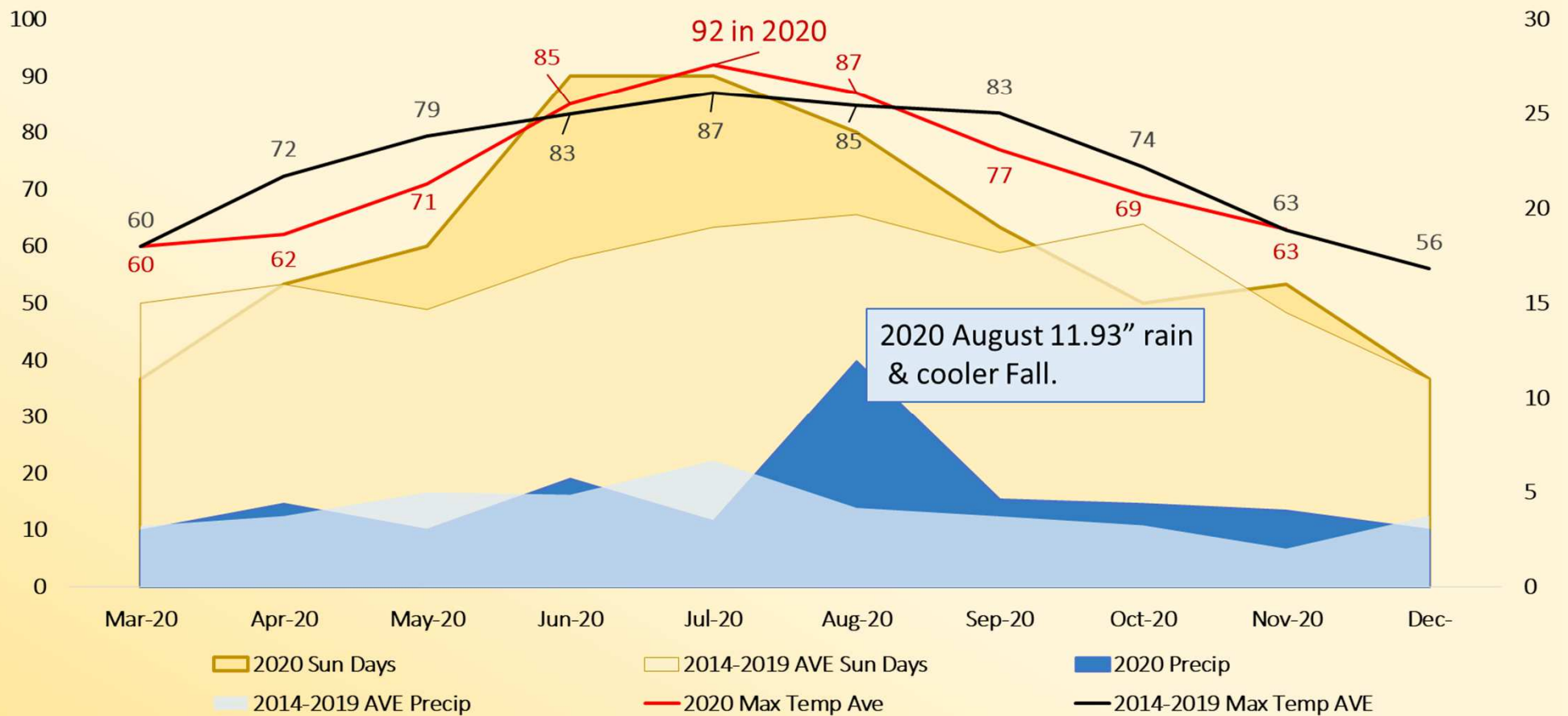
2020 Contributors: Annette Allor, Kathy Barylski, Alicia Buxton, Julie & Logan Costantino, Andrew Dugas, Susan Earp, Robyn Evans, Timothy Foard, Pam Franks, Jan Goetz, Patricia Greenwald, Meg and John Harris, Karen & Kevin Heffernan, Pam Henry, Bill & Gayle Hill, Linda Hunt, Kathy Kaberle, Brenda Kaufman, Clayton Koonce, Jenny Krantz, Nancy Lawson, Allen Lewis, Kathy Litzinger, Janet Lydon, Grazina & Mike McClure, John McKitterick, Woody Merkle, Sue Muller, Michael Osborne, Bonnie Ott, Pam Perna, Paul Petkus, Suzanne Probst, Sarah Romero, Seth Rosenfeld, David Ryan, Kurt Schwarz, Sharon Smith, Trudy Snope, Jo & Bob Solem, Robin Todd, Kristin Trouton, Mark Wallace, Kelsey Wellons, Barbara White, Jim Wilkinson, Katherine Wilson

How did 2020 compare to previous years?

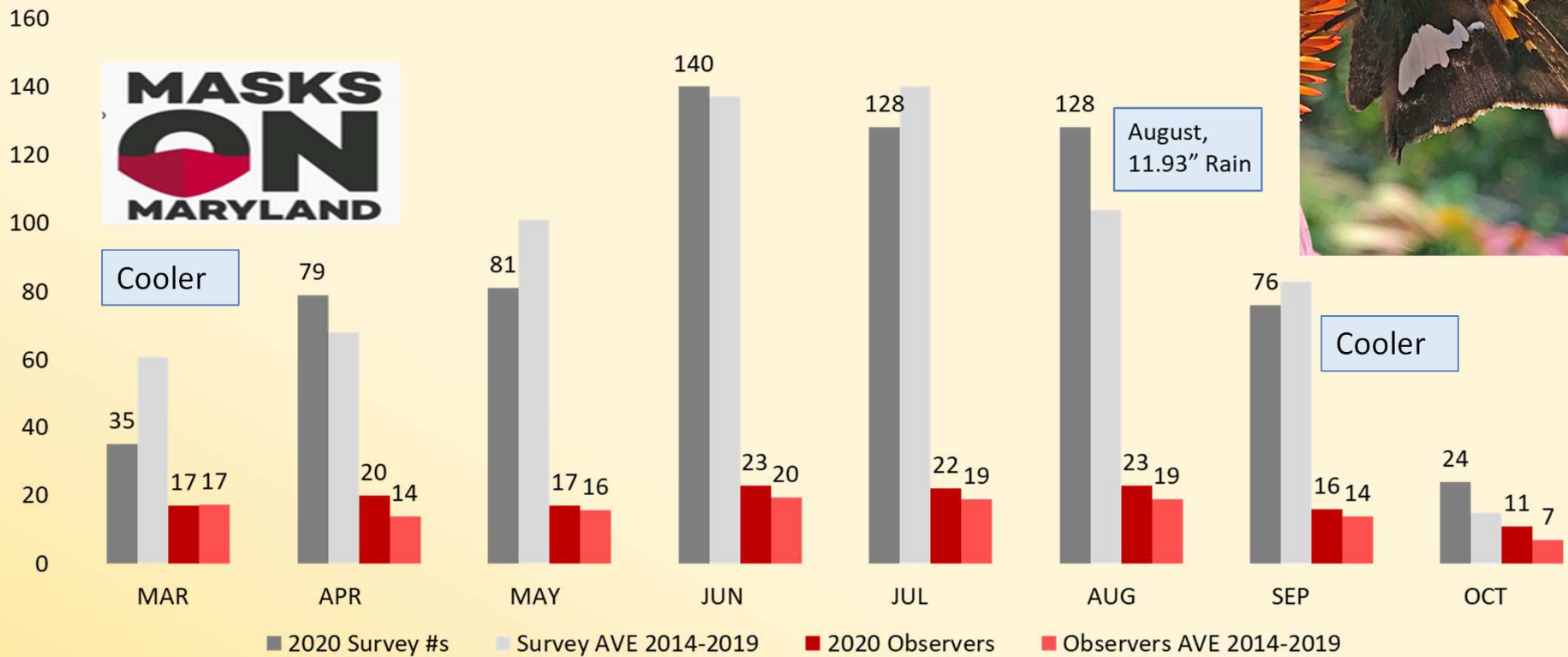
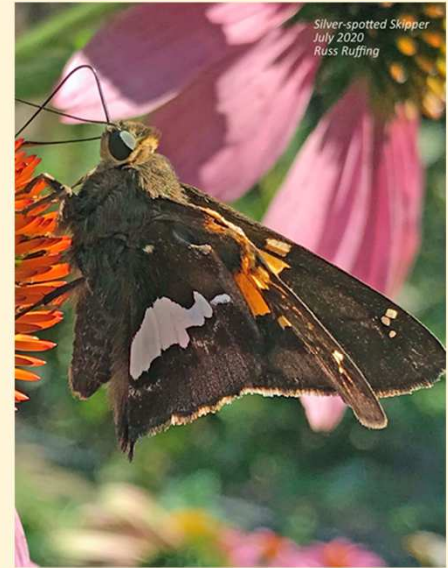


- 2020 survey participation and results are comparable to previous years.
- Private gardens and meadows appear to be increasingly important habitats, attracting unusual as well as common species.
- Survival of rarer species might depend on targeted habitat-specific surveys and conservation activities.

2020 spring & fall are cooler than previous 6-year averages with more late summer/fall rain.



2020 numbers of observers and of surveys are comparable to previous 6-year averages.



In 2020 surveyors sought out areas other than parks & home gardens.



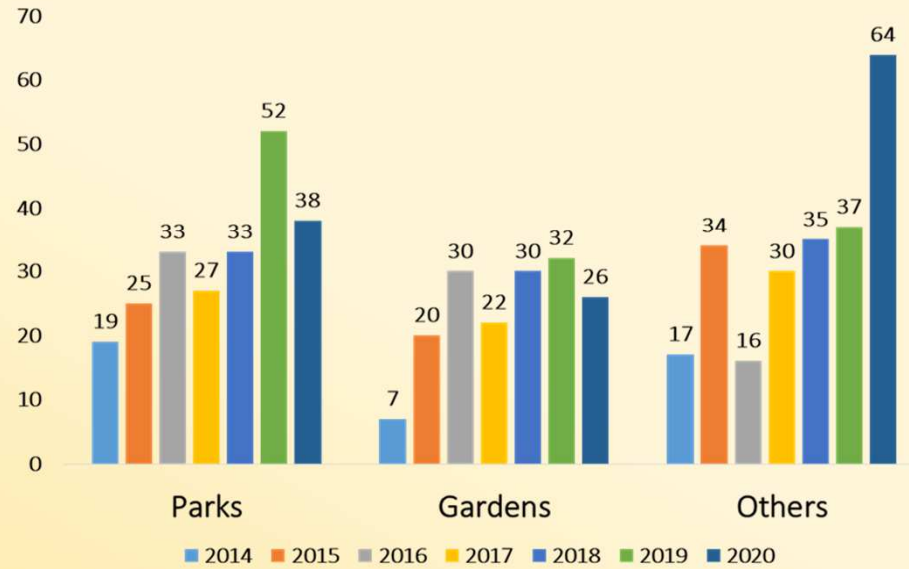
Low growth disturbed habitat
Woodbine farm 9/18/15
Linda Hunt



Low growth "disturbed habitat"
Oxford Square 9/25/16
Heffernans "chasing" Little Yellow

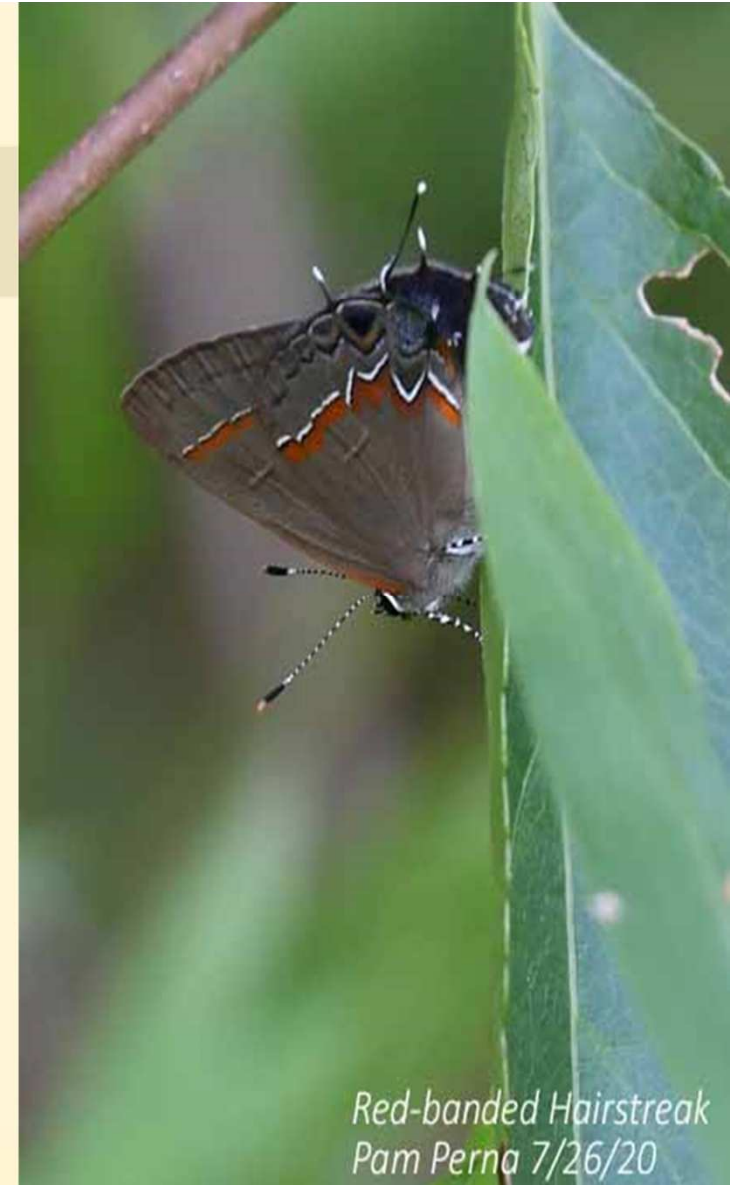
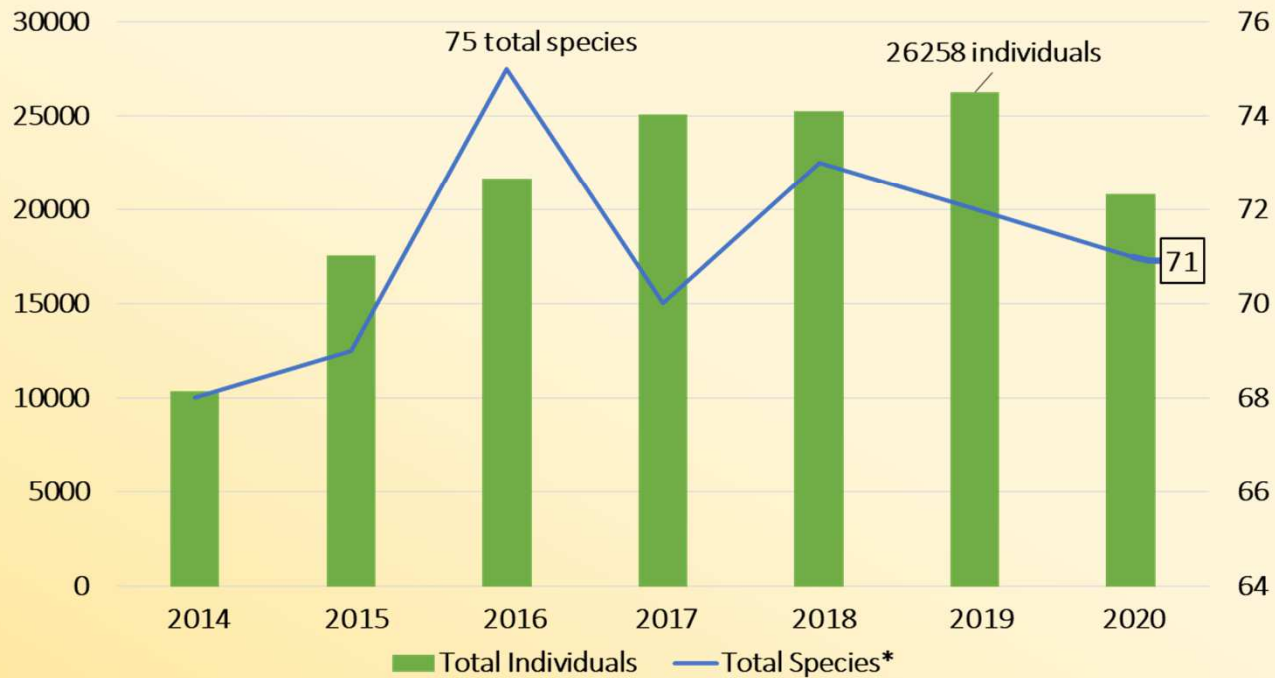


powerline 2020



Rt. 1 Elkrigde 9/23/20

2020 numbers of individuals & of species are comparable to previous 6-year averages

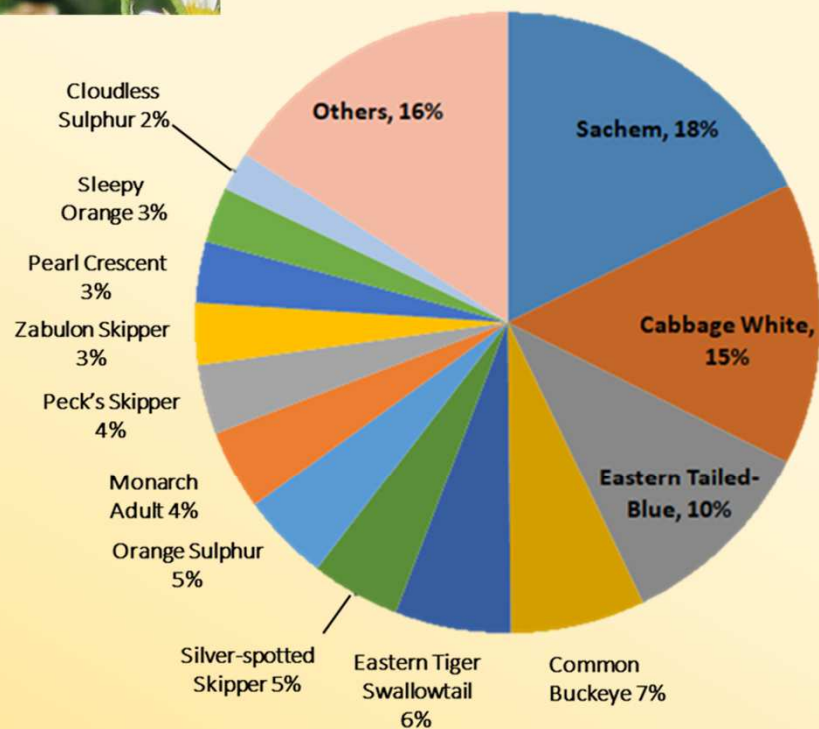




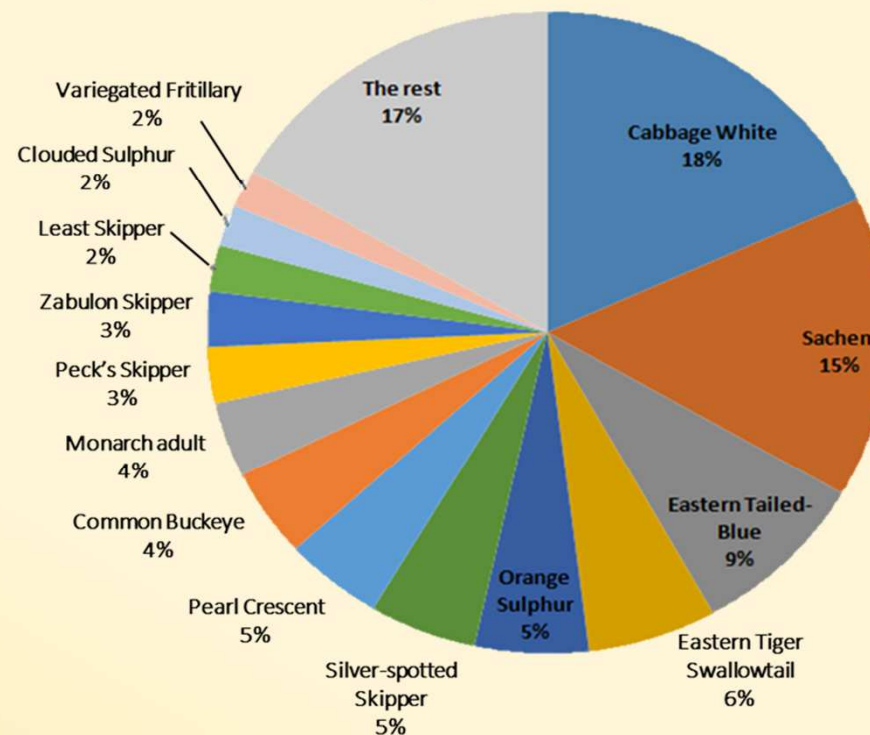
Sachem
Columbia 11/5/20
Clayton Koance

Most Numerous Species Comparison

2020 Totals

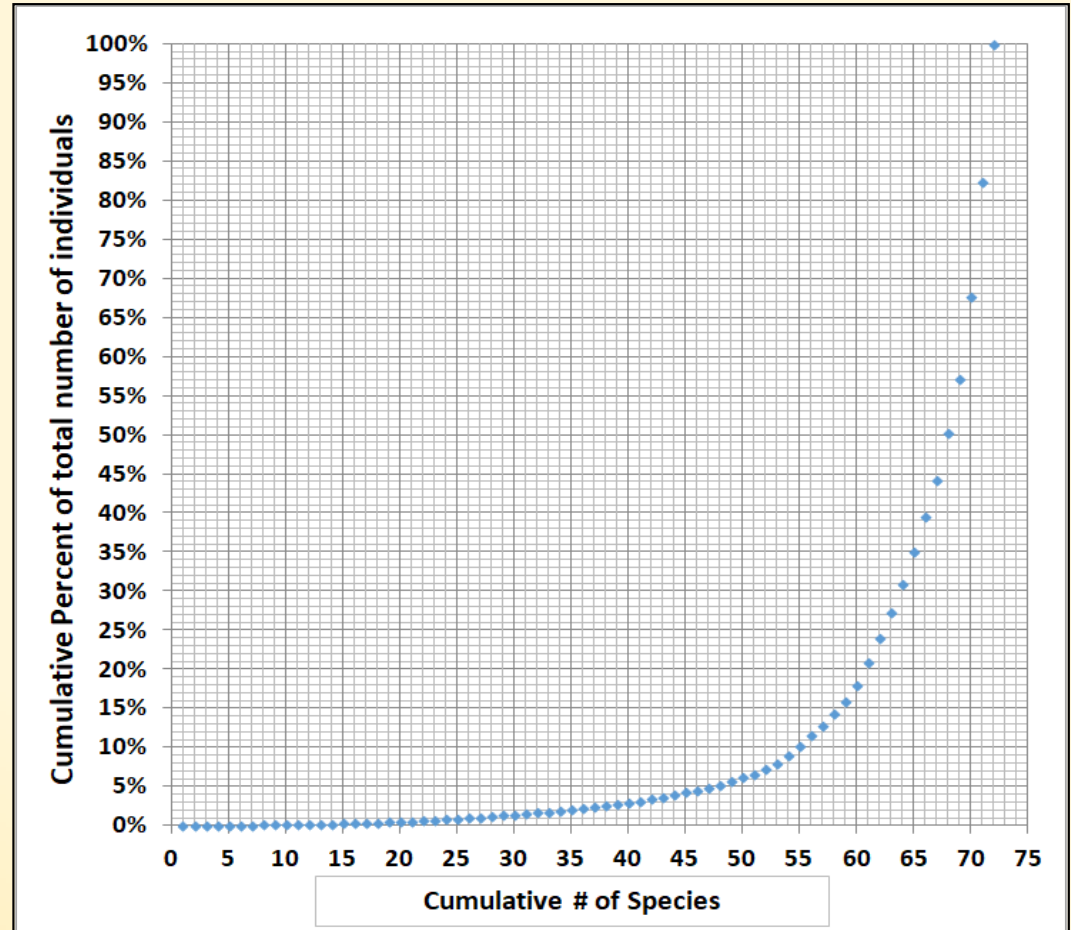


7 year Totals



Individual sighting distribution vs. number of species

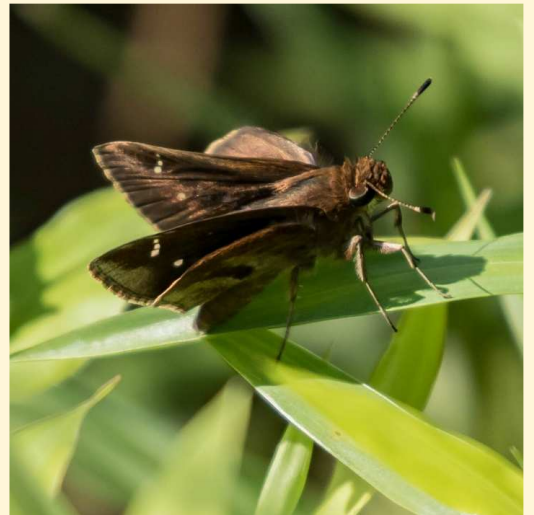
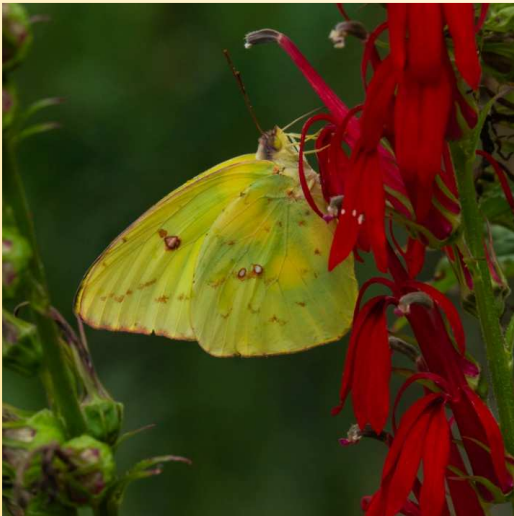
- If you look only at the number of species seen or the total number of individual butterflies, you don't get a complete picture of the health of the population
- We saw 71 species and 20,433 individual butterflies in 2020
- 17 (~ 25%) of the 71 species seen in 2020 had <10 individuals each
- 35 species (~50%) had < 30 individuals each
- 50% of the species accounted for 2% of the individuals



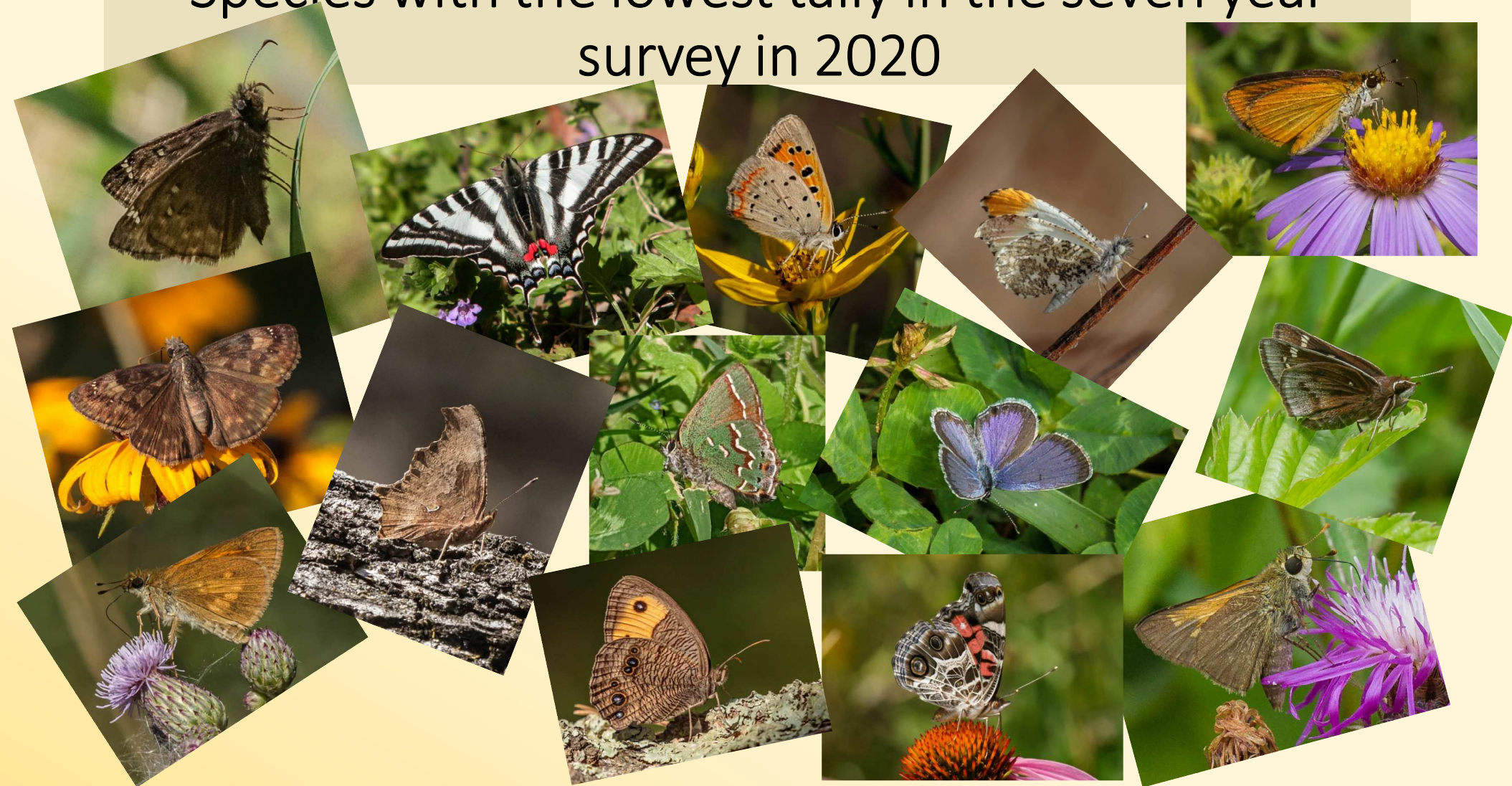
Species with the highest count year in 2020



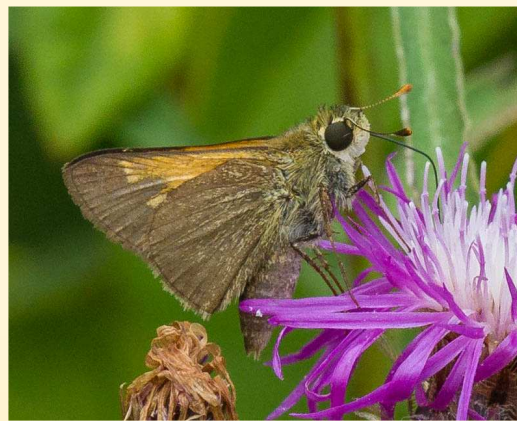
Two Year Trends: Last Two Years Most Individuals



Species with the lowest tally in the seven year survey in 2020



Two Year Trends: Last Two Years Least Individuals



Which HOCO species need conservation efforts?

<u>2020 Misses</u>	<u><10 seen in 7 years</u>	<u><10 seen in each year of seven year survey</u>	<u><10 seen in 2020</u>	<u>Largest drop from 2019 to 2020</u>
Hayhurst's Scallopwing	Hayhurst's Scallopwing	Hayhurst's Scallopwing	Juvenal's Duskywing	Juvenal's Duskywing
Checkered White	Checkered White	Checkered White	Broad-winged Skipper	Broad-winged Skipper
Little Yellow	Little Yellow	Little Yellow	Zebra Swallowtail	Zebra Swallowtail
Bronze Copper	Bronze Copper	Bronze Copper	Banded Hairstreak	Banded Hairstreak
Henry's Elfin	Henry's Elfin	Henry's Elfin	Juniper Hairstreak	Juniper Hairstreak
Spring Azure	Spring Azure	Spring Azure	Crossline Skipper	Wild Indigo Duskywing
Dusted Skipper		Long-tailed Skipper	Long-tailed Skipper	Eastern Pine Elfin
Giant Swallowtail		Common Sootywing	Common Sootywing	Variegated Fritillary
Dainty Sulphur		Mulberry wing	Mulberry wing	Eastern Comma
		Brazilian Skip (cats only)	Brazilian Skip (cats only)	American Lady
		Harvester	Harvester	
		Eastern Pine Elfin	Eastern Pine Elfin	
		White M Hairstreak	White M Hairstreak	
		Dusted Skipper	Mourning Cloak	
			Hackberry Emperor	
			Tawny Emperor	
			Common Wood-Nymph	

Butterfly Observation Facts

Multiple brood butterflies that nectar on plants in gardens and fields:

most Swallowtails, Whites, Sulphurs, most skippers, Summer Azure, Eastern Tailed-blue, Gray and Red-banded Hairstreaks, Variegated Fritillary, Pearl Crescent, American and Painted Lady, Buckeye, and Monarch

Single brood butterflies that nectar:

Hobomok Skipper, Juvenal's Duskywing, Banded and Coral Hairstreak, Great Spangled Fritillary

Butterflies that are in habitats that you have to go out of your way to visit:

Northern and Southern Cloudywing, Dusted and Broad-winged Skippers, Eastern Pine and Henry's Elfin, Falcate Orange-tip, Juniper Hairstreak, Meadow Fritillary, Appalachian Brown, Little Yellow, Harvester, Zebra Swallowtail, Hackberry and Tawny Emperors, Snout

Butterflies that are hard to ID:

Juvenal's Duskywing, Spring Azure, The Witches (Northern Broken-dash, Little Glassywing, Dun, Tawny-edged and Crossline Skippers)

Butterflies that don't or rarely nectar:

Little Wood-satyr, Common Wood-nymph, Appalachian Brown, Northern Pearly-eye, Hackberry and Tawny Emperors, Snout, Eastern Comma, Question Mark, Mourning Cloak, Harvester, Red Admiral, Viceroy, Red-spotted Purple

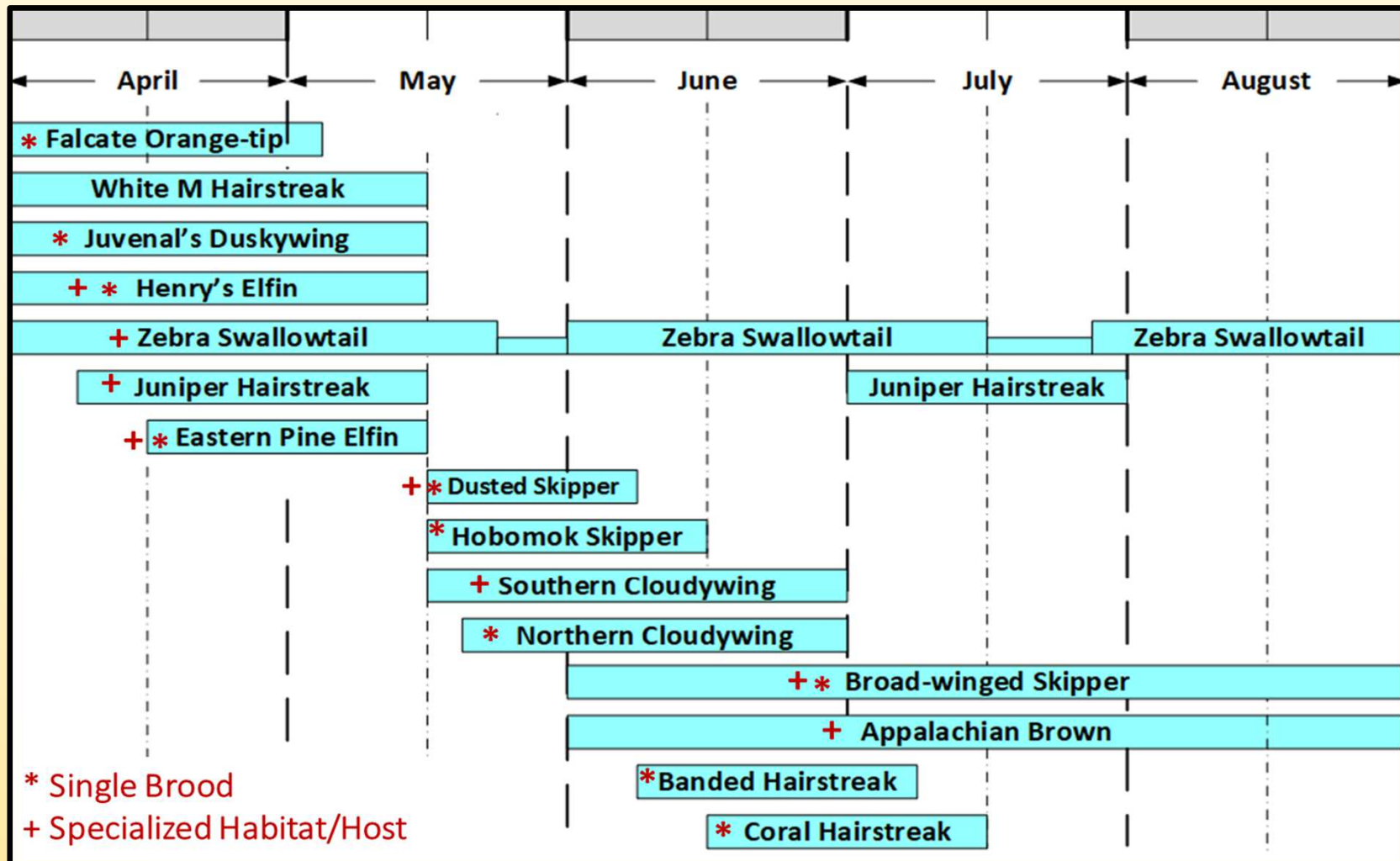
Strays:

Bronze Copper, Little Yellow, Dainty Sulphur, Checkered White, Hayhurst's Scallopwing, Henry's Elfin

Late summer / fall migrants:

Ocala, Long-tailed, Clouded and Fiery Skippers, Common Checkered-skipper, Giant Swallowtail, Checkered White

Flight Times of Butterflies that have a Single Brood and/or exist in Specialized Habitat





7-year High Numbers	2013 Prototype	2014	2015	2016	2017	2018	2019	2020
Coral Hairstreak	2	1	5	3	14	2	4	26***
Silvery Checkerspot	53*	13	1	4		3	5	32
4 Southern Migrants								
Long-tailed Skipper				4	2	4	2	4
Brazilian Skipper (cats only)						4**	1	6**
Cloudless Sulphur	26		32	87	149	44	180	424
Sleepy Orange	29	7	19	30	153	157	256	588

Selected 2020 Species Highs & Lows

None Recorded	2013 Prototype	2014	2015	2016	2017	2018	2019	2020
Dusted Skipper		1	6	4	7	4		
Bronze Copper				2				
Henry's Elfin						2		
4 Southern Migrants								
Giant Swallowtail		3		1	3		12	
Checkered White				2		1		
Little Yellow			1	6			1	
Dainty Sulphur	2						132**	



*Irruption **Transported on plants? ***Multiple Sightings of same Individuals?

Emigration vs Migration – Changes?

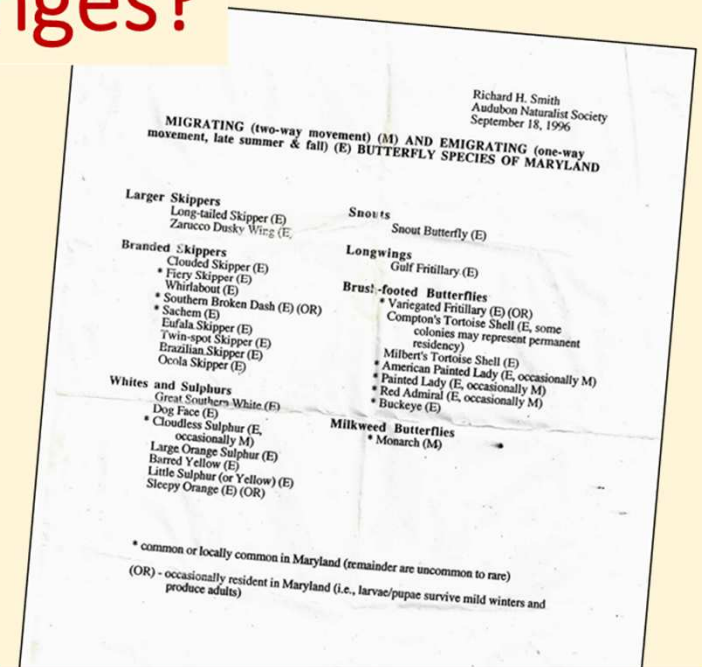
Migration – 2 way

- Monarch
- American Lady?
- Painted Lady?
- Red Admiral?
- Cloudless Sulphur?



Emigration – 1 way

- Long-tailed Skipper
- Clouded Skipper
- Fiery Skipper
- Sachem
- Brazilian Skipper?
- Ocola Skipper
- American Snout?
- Common Buckeye (Giant Swallowtail)



Occasional Resident

- Sleepy Orange?
- Variiegated Fritillary?
- Southern Broken-Dash?

Southern Emigrants

Long-tailed Skipper



12 individuals total 2014-2019; 4 in 2020
Locations: Mt. Pleasant (Allor 9/22)
Elkhorn (Barlyski 9/6)
gardens (Susan Earp 7/7, Wellons 10/14)

Giant Swallowtail



19 individuals total 2014-2019; none in 2020
Previous seen seeking nectar from zinnia and lantana

Attract Southern Emigrants to the garden with late season blooms such as zinnias and lantana.

Southern Hitchhikers

Brazilian Skipper



Travels north with its host plant, Canna Lily, a garden annual increasing in popularity.

- 9/24/20 Mike & Grazina McClure found 6 caterpillars on Canna in their garden.
- 10/8/19 Jim Wilkinson recorded the first adult at Dobbin Center, Columbia
- 10/9/18 Jim found 4 caterpillars on a Canna grouping at a Columbia pool, Columbia.

Add multiple Canna plants to the garden.

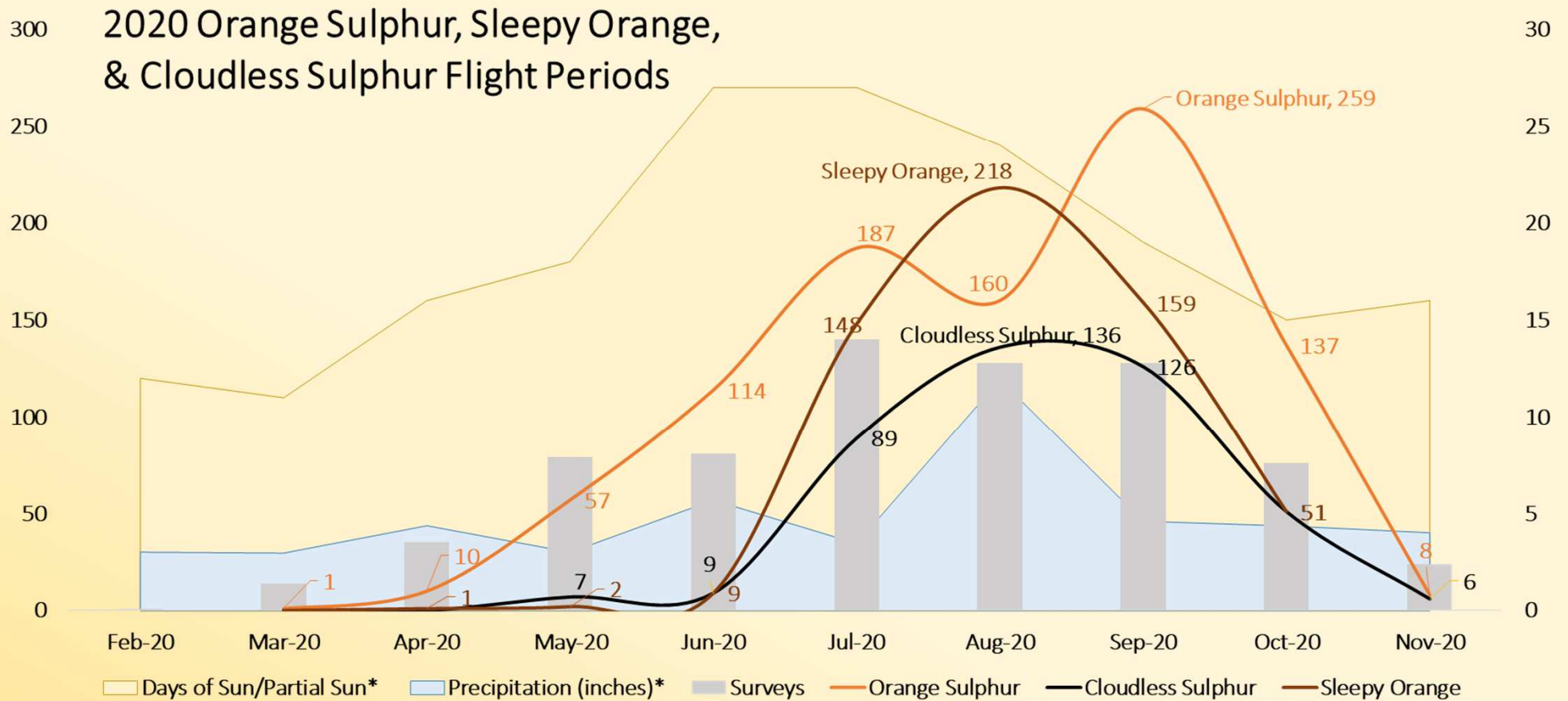
Dainty Sulphur



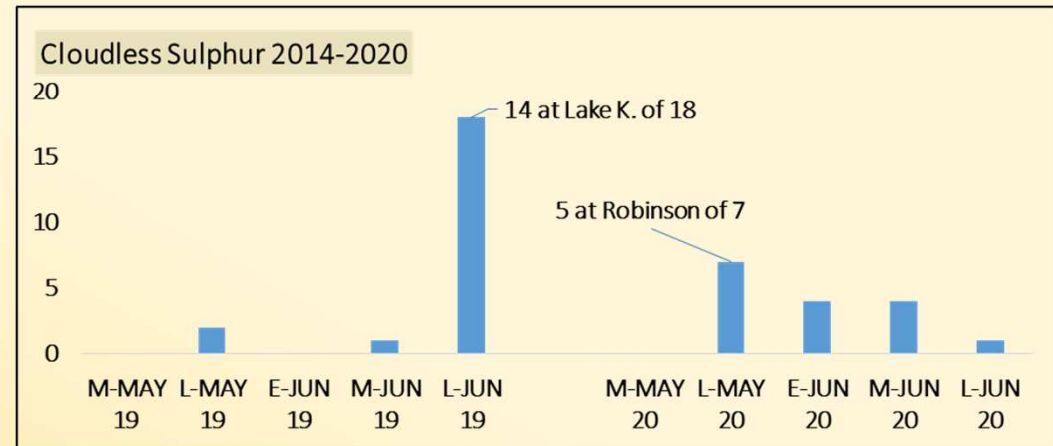
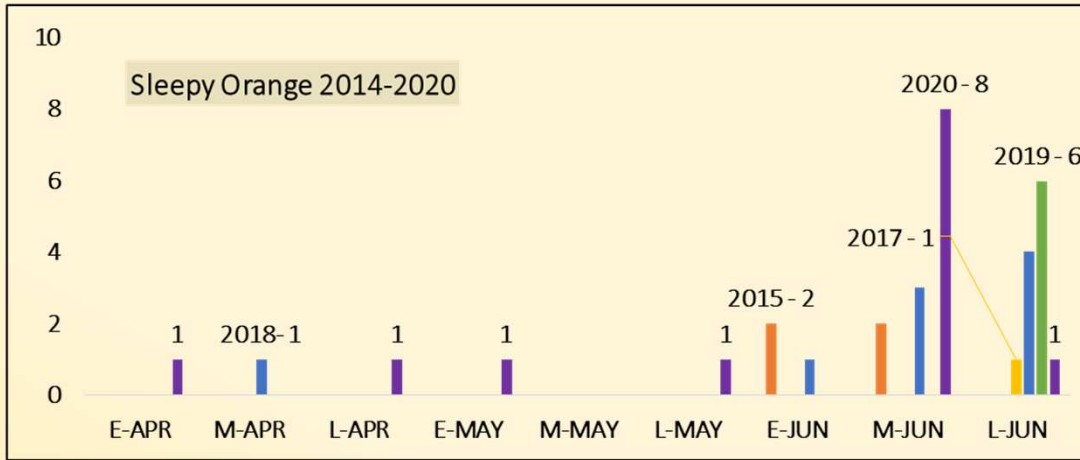
- No sightings of this species in 2020 to indicate that individuals survived winter.
- In mid-September, 2019, Kathy Litzinger and Annette Allor documented over 130 individuals in **PVSP** on the River Road & Grist Mill trails.
- Since no other sightings were recorded outside the area, caterpillars or eggs may have hitch-hiked north with hay in recent landscaping.
- Single individuals were first seen in Howard County in late October, 2012, by Jim Wilkinson at **Gateway** and Linda Hunt on the **Patuxent Branch Trail**.



Southern Emigrants or Occasional Residents?



Sleepy Orange & Cloudless Sulphur – Early Occurrence



Why are only some Spring species numbers low?

Early spring 2020 species numbers may reflect the pandemic shutdown as well as typical March & April weather.

However, they also reflect continuing challenges such as:

- limited known locations/specialized habitats
- loss of habitat/host plant
- single brood/short flight period
- observation challenges – location accessibility or species identification.



Question Mark
Ellicott City 2020
Kathy Litzinger



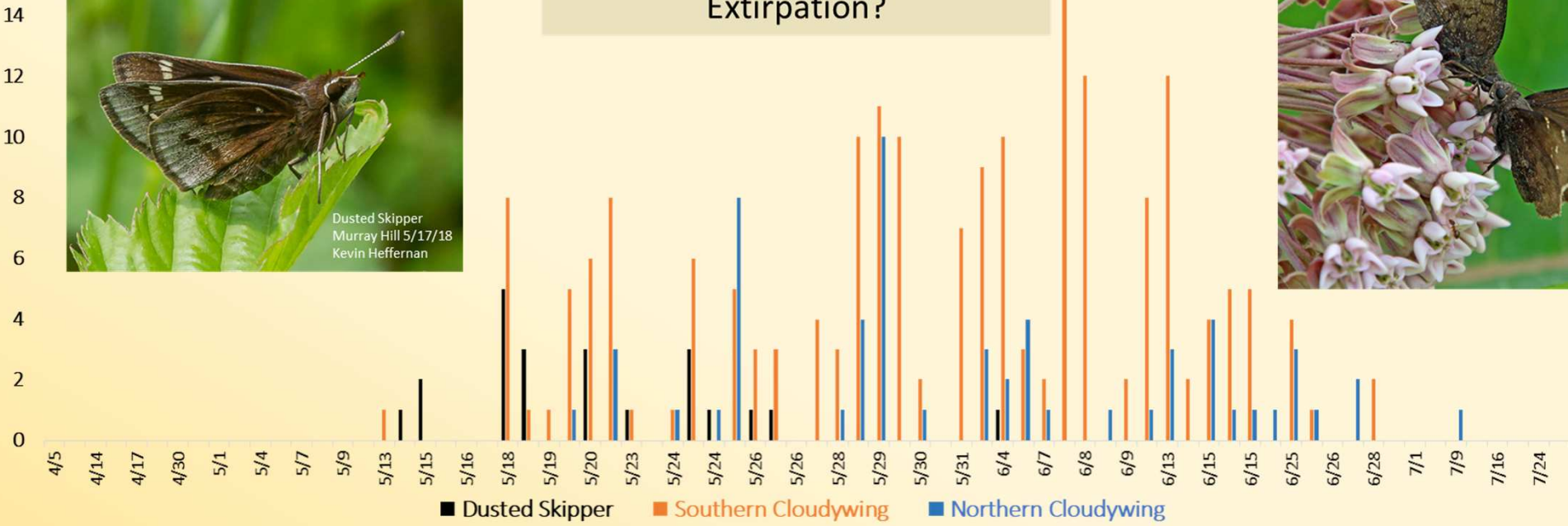
Juvenal's Duskywing
Woodbine 5/2/20
Linda Hunt

Dusted Skipper, Southern Cloudywing & Northern Cloudywing

Howard County 2014-2020
(65 surveys: May 1 – July 29)



Habitat degradation?
Climate change?
Extirpation?



1st/last Occurrence: Dusted Skipper (22) 5/23/14 – 5/26/18; Southern Cloudywing (187) 5/23/14 – 6/13/20; Northern Cloudywing (58 + 6 other sites) 5/30/14 – 6/26/20

Locating Hairstreaks & Elfins



White M Hairstreak
Gateway 9/21/20
Linda Hunt



Coral Hairstreak
Mt. Pleasant 6/22/20
Annette Allor



Pine Elfin
Woodbine 5/2/20
Linda Hunt

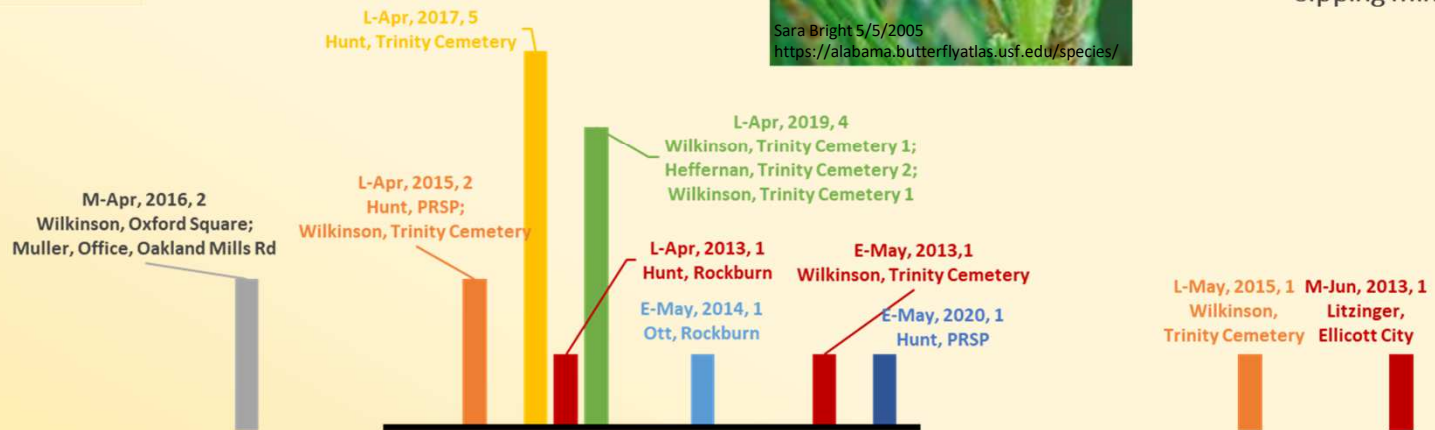


Eastern Pine Elfin



Trinity Cemetery 2019
on pussytoes (*Antennaria plantaginifolia*)

Rockburn Branch Park 2013
sipping minerals



Identify & preserve habitats with large groves of Virginia (& Pitch or White?) pines.

Habitat: Does pine species matter?



Virginia Pine
Pinus virginiana

Eastern White Pine
Pinus strobus L.



19 Sightings at 7 Locations

Virginia Pine

- Trinity (12)
- Rockburn (2)
- PRSP (2)
- Oxford Square (1)

Eastern White Pine?

- Oakland Mills Rd (1)
- Ellicott City (1)

Pitch Pine
Pinus rigida
3 needles



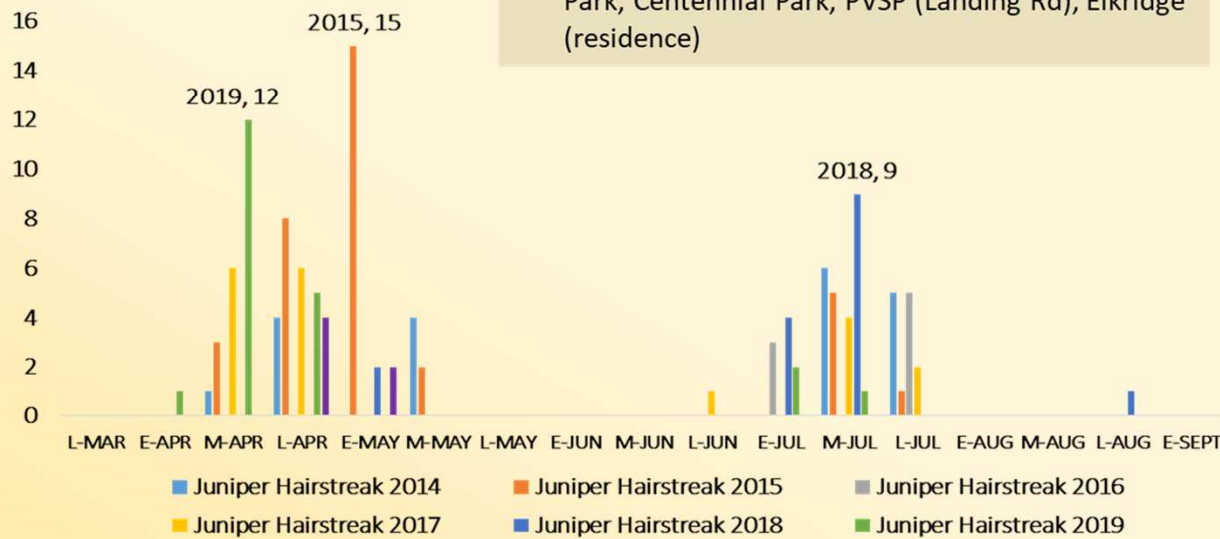
<http://www.treesforme.com/>
Pitch pine cones, Photo citation: Robert H. Mohlenbrock
@ USDA NRCS PLANTS Database/USDA NRCS. 1995



Juniper Hairstreak

124 Sightings at 8 Locations

- Mt. Pleasant 87 (32 surveys)
- PRSP (Hipsley, Jones Rd) 16 (7surveys)
- Gateway 13 (6 surveys)
- 1 each at: Alpha Ridge Park, West Friendship Park, Centennial Park, PVSP (Landing Rd), Elkridge (residence)



Eastern Red Cedar
(*Juniperus virginiana*)
dry-moist soils, scale-like leaves
bluish-green berries July-March

Identify & preserve habitat -- large groves of Red Cedar.



57 Sightings at 6 Locations by 10 Observers
 Flight Period: Late June
 Host Plants: wild cherry (Prunus spp.), chokeberry
 Overwinters as eggs!
 Nectars on milkweed, dogbane
 Locations: PRSP habitats lost through succession; found on milkweed at Mt. Pleasant, Schooley Mill, Warfields Pond & along Middle Patuxent River (difficult access)



Coral Hairstreak

YEARLY TOTALS	2013	2014	2015	2016	2017	2018	2019	2020
INDIVIDUALS 57	2	1	5	3	14	2	4	26
SURVEYS 27	2	1	5	3	5	2	4	5
LOCATIONS 6	2 Hipsley Mill 6/15 (1) Sheppard 6/27 (1) Sheppard /Hunt	1 Hipsley Mill 6/30 (1) Hunt	5 Hipsley Mill, Ann. Rock 6/16 (2) Hunt Mt. Pleasant 6/19 Ott (1) Warfields Pond 6/29 (1) Hunt/Wilkins on Tufts garden 7/23 (1) Tufts	1 Murray Hill 6/23 Hunt (1) 6/25 Heffernan (1) Hunt (1)	1 Mt. Pleasant 6/20 Ott (1) 6/24 Heffernan (5) 6/24 Litzinger (3) 6/24 Koonce (4) 6/29 Schwarz (1)	1 Mt. Pleasant 6/17 Heffernan (1) 6/28 Heffernan (1)	1 Mt. Pleasant 6/15 Woody (1) 6/17 Schwarz (1) 6/21 Heffernan (1) 6/22 Heffernan (1)	2 Mt. Pleasant 6/21 Allor (1) 6/22 Allor (9) 6/25 Heffernan (8) 6/27 Litzinger (7) Schooley Mill 6/29 Heffernan (1)

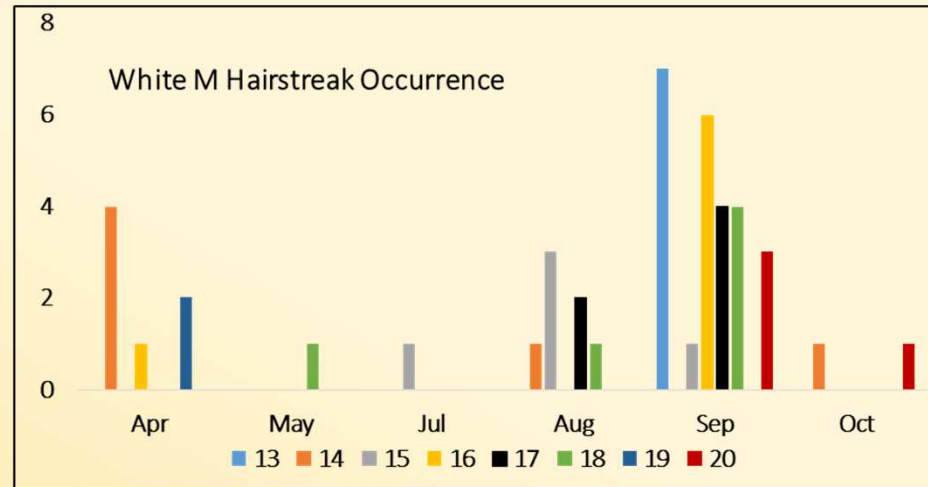




White M Hairstreak

Hiding in Plain Sight?

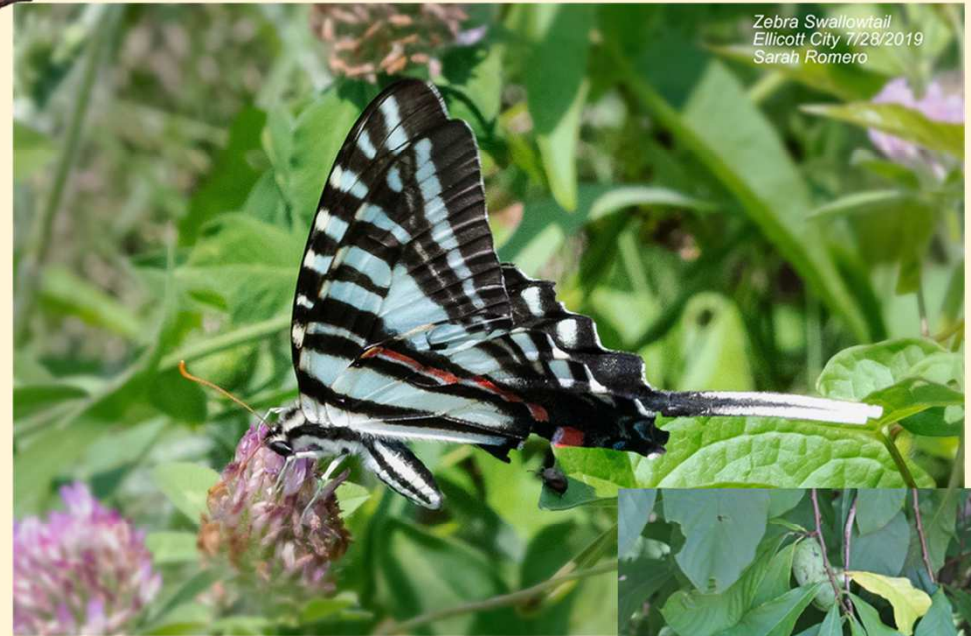
Host plant: Oaks **Overwinters:** as chrysalis
36 Sightings at 12 Locations
Spring: Sharps Farm (4) and 1 at Rockburn, Western Regional, Mt. Pleasant, Smith garden **Fall:** Gateway (10) Patuxent Branch Trail (4) Litzinger garden (3) MPEA (2) Elkridge(2) Powerlines (2) Western Regional (2) Schooley Mill (1) Mt. Pleasant (1)



Encourage more people to look for this species.



Zebra Swallowtail



125 individuals recorded 2014-2020 ; 8 in 2020

Flies in L-April and E-July

Sightings Locations:

- Belmont Historic Park, PVSP – Hollofield
- Gateway
- Rockburn Branch Park
- Patuxent Branch Trail (& Wincopin Trails?)
- Elkhorn Gardens
- private gardens (Litzinger & Muller)
- PRSP (horse trailer lot)

Overwinters as chrysalis

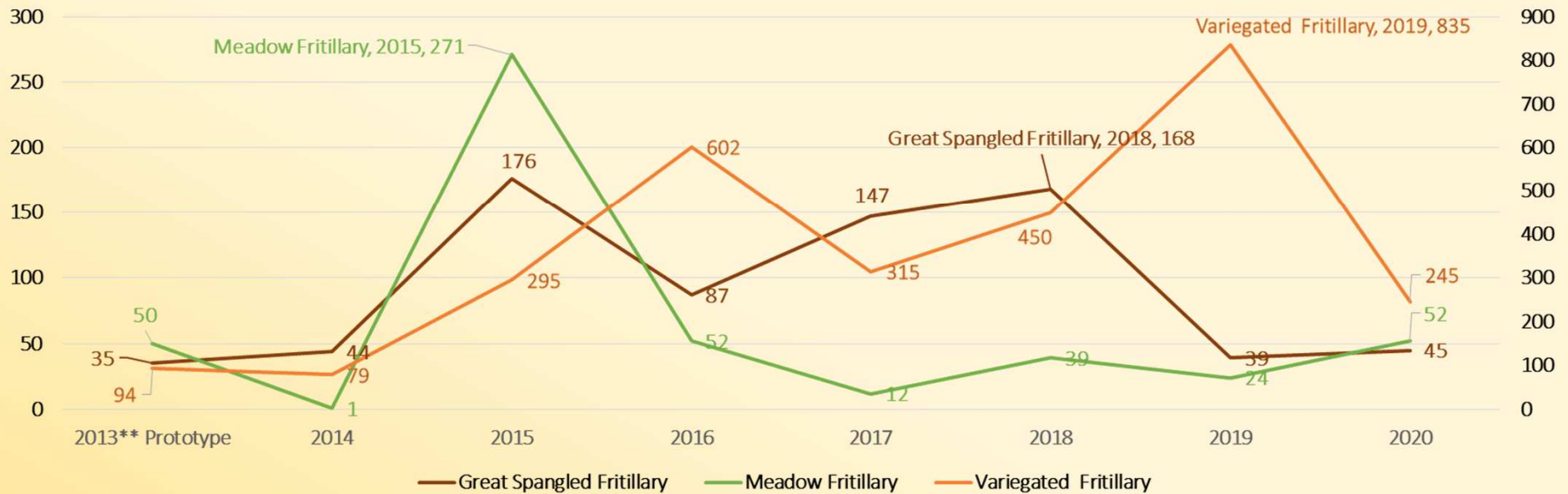
Identify locations with it's
host plant -- pawpaw.



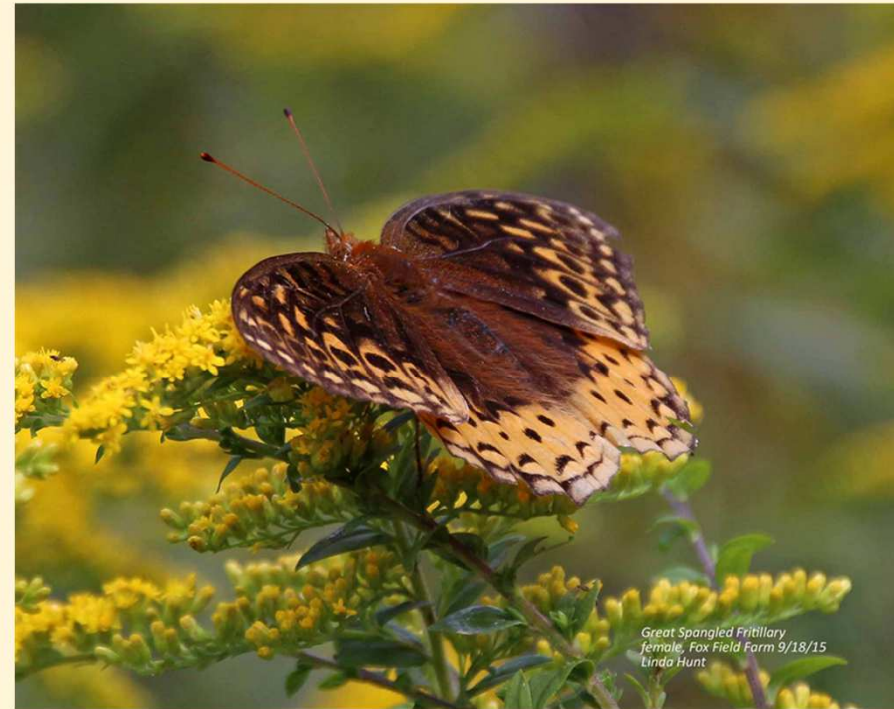
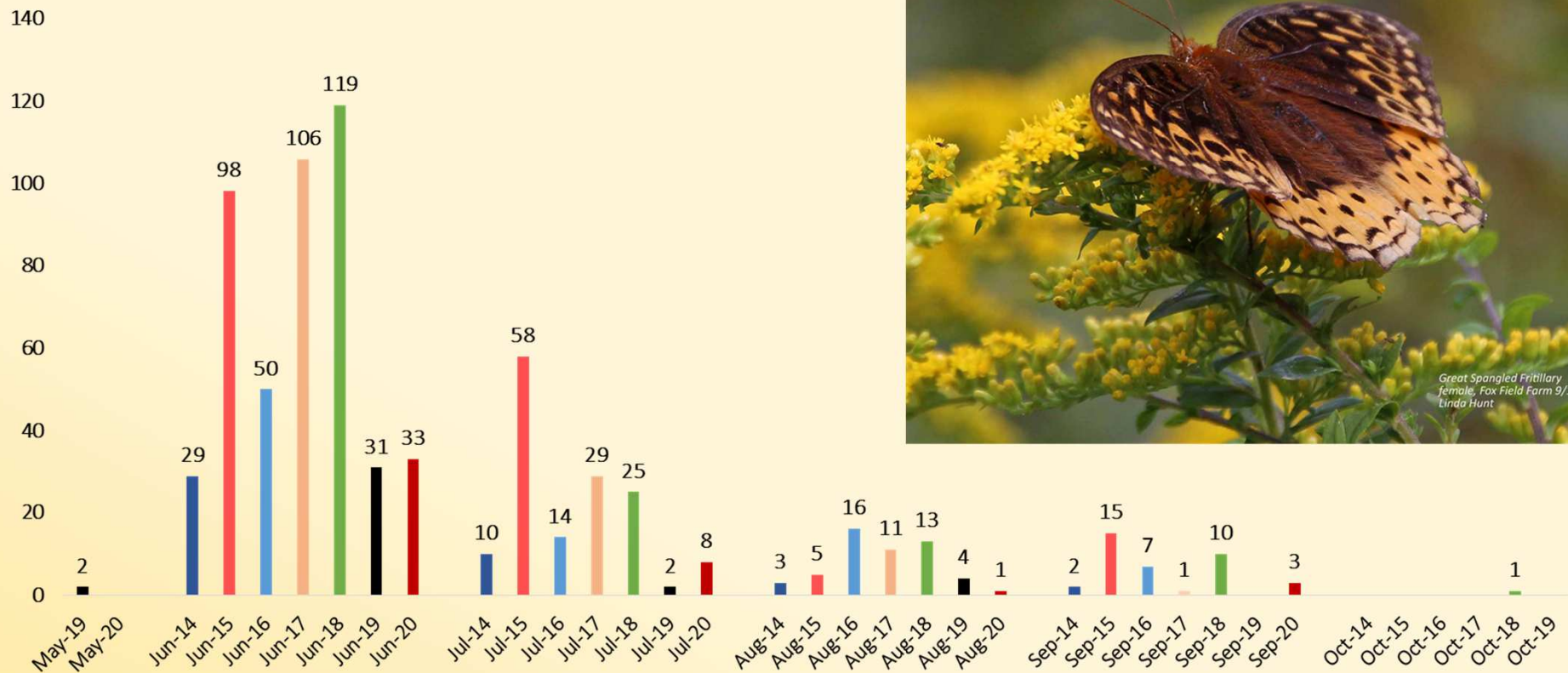
Where are the Fritillaries?

Meadow Fritillary: resident, small, moist meadows, 3+ broods, violets, caterpillar overwinters, "home body"

Variegated Fritillary: migrant/resident? fields & gardens, 1-3 broods, violets & passion vines (*Passiflora*), common



Great Spangled Fritillary



1 Brood: males emerge 1st, females mate & then diapause, reappearing in August to lay eggs; caterpillars overwinter as unfed 1st instar to feed on fresh violets in the spring. (HOCO 6-year sightings above.)

Great Spangled Fritillary



Encourage open grassy fields with violets and clover in parks & private landscapes with limited use of pesticides.

Locations with the highest number of Great Spangled Fritillary per Survey

Conservation efforts can make a difference!

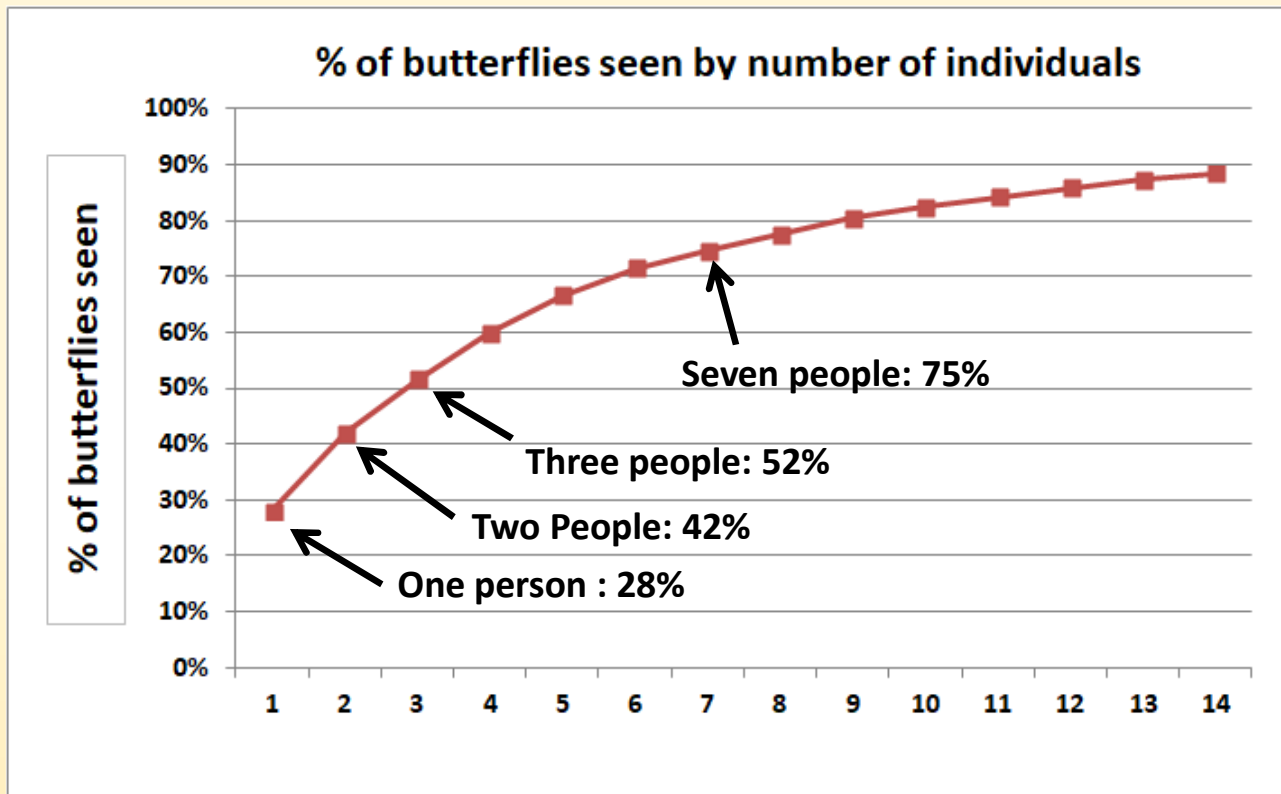


- Private gardens and meadows appear to provide increasingly important habitats, attracting unusual as well as common species.
- Survival of rarer species might depend on targeted habitat-specific surveys and conservation activities.

Each Person Matters

- Every one of the people who sends in a survey makes an important contribution to this study. Thank you!
- That being said, the graph (from 2019) shows that a majority of the butterflies seen were reported by a few individuals.

You can make a difference!



One Location Can Make a Difference (HOCO Conservancy)

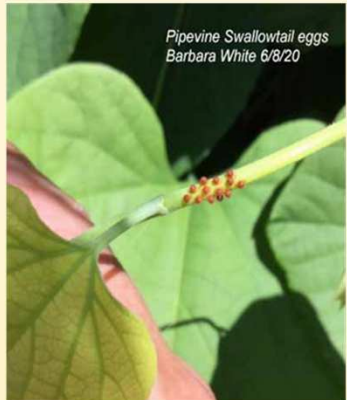
- A total of 66 butterfly species have been seen at the Howard County Conservancy
- It has the largest list in the county by far
- The new book, “Butterflies of the Mid-Atlantic” by Robert Blakney and Judy Gallagher includes the Conservancy as one of 14 “Noted places to observe” butterflies in Maryland
- It is the only location in Howard County so honored
- Next possible species could be Zebra Swallowtail or Tawny Emperor

Swallowtails		Brush-footed Butterflies		Spreadwing Skippers	
Pipevine Swallowtail	U X	American Snout	R X	Silver-spotted Skipper	C X
Zebra Swallowtail	U	Variagated Frit	C X	Long-tailed Skipper	R X
Black Swallowtail	U X	Great Spangled Frit	C X	Southern Cloudywing	R
Spicebush Swallowtail	C X	Meadow Fritillary	U X	Northern Cloudywing	U X
Giant Swallowtail	R X	Silvery Checkerspot	U X	Hayhurst's Scallopwing	VR X
Eastern Tiger ST	A X	Pearl Crescent	A X	Juvenal's Duskywing	C X
Whites and Sulphurs		Question Mark	U X	Horace's Duskywing	C X
Checkered White	R	Eastern Comma	U X	Wild Indigo Duskywing	C X
Cabbage White	A X	Mourning Cloak	U X	Common Checkered-skip	U X
Falcate Orangetip	U X	American Lady	C X	Common Sootywing	U X
Clouded Sulphur	C X	Painted Lady	C X	Grass Skippers	
Orange Sulphur	A X	Red Admiral	C X	Swarthy Skipper	U X
Cloudless Sulphur	U X	Common Buckeye	C X	Clouded Skipper	R X
Little Yellow	R	Red-spotted Purple	C X	Least Skipper	C X
Sleepy Orange	U X	Viceroy	U X	Fiery Skipper	U X
Dainty Sulphur	R	Hackberry Emperor	R X	Peck's Skipper	C X
Gossamer-Winged Butterflies		Tawny Emperor	R	Tawny-edged Skipper	U X
Harvester	R X	Satyrs		Crossline Skipper	C X
American Copper	U X	Northern Pearly Eye	U X	Southern Broken-dash	U X
Bronze Copper	VR	Appalachian Brown	U	Northern Broken-dash	U X
Coral Hairstreak	R X	Little Wood Satyr	C X	Little Glassywing	A X
Banded Hairstreak	U X	Common Wood Nymph	U X	Sachem	A X
Henry's Elfin	VR	Milkweed Butterflies		Mulberry Wing	VR
Eastern Pine Elfin	R	Monarch	C X	Hobomok Skipper	U X
Juniper Hairstreak	U X			Zabulon Skipper	C X
White M Hairstreak	R X			Broad-winged Skipper	R X
Gray Hairstreak	C X			Dun Skipper	U X
Red-banded Hairstrk	U X			Dusted Skipper	R
Eastern Tailed-blue	A X			Ocola Skipper	R X
Spring Azure	R			Brazilian Skipper	VR
Summer Azure	C X				

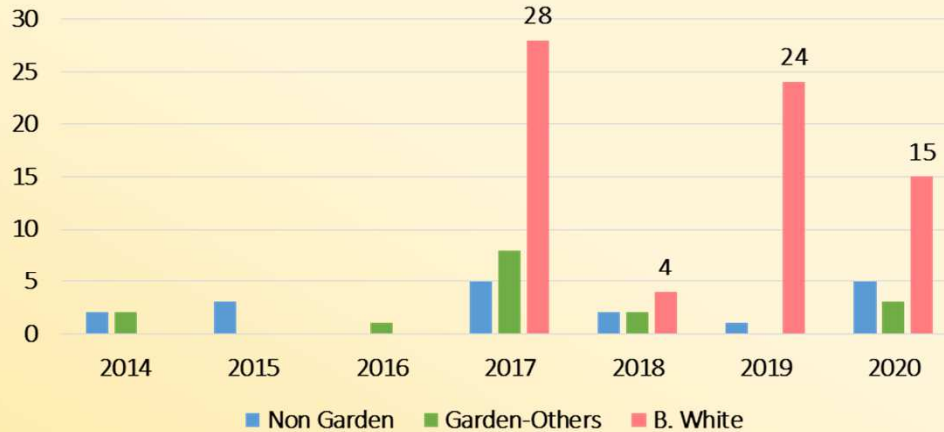
One Garden Can Make a Difference

Pipevine Swallowtail

Limited Host Plant – Pipevine
 Flight time: L-June, L-July, E-September
 Overwinters as chrysalis
 105 individuals recorded; 2/3rds from 1 garden
 Locations: private gardens, Mt. Pleasant, Elkhorn Gardens, Gateway,
 Schooley Mill, Daisy Meadow, Western Regional, Rockburn. David Force



Pipevine Butterfly Sightings Locations



Encourage plantings of pipevine (*Aristolochia*) in gardens & native habitats.

Consider Putting in a Pollinator Garden

- Howard County has joined Bee City, a Xerces Society program that encourages the planting of pollinator gardens
- The Bee City committee has developed templates with suggested plants for various sun and soil conditions
- There is a detailed spreadsheet with plant suggestions and lots of information to help you with the design
- Template: <https://livegreenhoward.com/wp-content/uploads/2020/04/HoCo-Bee-City-S-D-FINAL-4-30-2020.pdf>
- Native plant spreadsheet: <https://howardbirds.website/pollinator-resources/>



Sunny & Dry Garden for Pollinators

These plants were selected for their ability to withstand drought in sunny locations, and for their pollinator value.

<p>Mountain Mint* (<i>Synanemum matricaria</i>)</p> <p>The daisy flowers are extremely attractive to butterflies, bees, and other pollinators from July through September. A great spreader with misty scent.</p> <p>MM 2 plants</p>	<p>Threadleaf Coreopsis* (<i>Coreopsis verticillata</i>)</p> <p>The cheery yellow flowers on delicate foliage last for months beginning in July. Some native bees on conopse pollen to provision their nests.</p> <p>C 3 plants</p>	<p>Smooth Blue Aster* (<i>Aster laevis</i>)</p> <p>This plant is short (for an aster), growing two to three feet with long-lasting lavender blue flowers that feed butterflies and others late in the season.</p> <p>SBA 4 plants</p>	<p>Yellow Joe-Pye* (<i>Rudbeckia fulgida</i>)</p> <p>You and the butterflies will love the tall-growing daisy purple flower clusters of this "weed" in your yard. This pollinator magnet also draws bees and other insects.</p> <p>JPW 2 plants</p>	<p>Purple Coneflower* (<i>Echinacea purpurea</i>)</p> <p>Coneflower is easy to grow, and its purple blooms are popular with people and pollinators. When it renews, you'll have plenty to share.</p> <p>CF 3 plants</p>	<p>Red Chokeberry* (<i>Aronia arbutifolia</i>)</p> <p>This tall, narrow deciduous shrub has red berries for birds and vibrant flowers that provide an important food source for early-emerging pollinators.</p> <p>RC 2 plants</p>	<p>Mass Phlox* (<i>Phlox subulata</i>)</p> <p>This is a short growing, front-of-the-bed plant with lots of spring color. Its early bloom attracts bee flies, small butterflies and skipper.</p> <p>MP 12 plants</p>
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* Deer Resistant, not normally browsed

Note: To make this planting smaller, reduce the number of smaller plants around the Red Chokeberry, the largest plant in the design.

More info on Bee City:
<https://livegreenhoward.com/live/pollinators/>

Featured Pollinator:
American Lady
Vanessa virginiana
American lady butterflies nectar on coneflowers, milkweed, and many other native species. But they lay eggs primarily on passiflora (Anemone species), slowly groundcover. Caterpillars hide during the day in silky enclosures they create from the sticky leaves, coming out at night to feed.

Alternates for selected species

The following plant species can be alternately combined to create a pollinator garden in sunny, dry conditions. For more information about native plants and other pollinator resources, visit: <https://livegreenhoward.com/live/pollinators/>

<p>Mountain Mint* (<i>Synanemum matricaria</i>) Wild Bergamot* Shrubby St. John's wort (Hypericum procumbens)</p> <p>MM</p>	<p>Threadleaf Coreopsis* Bluestem Goldenrod* (<i>Rudbeckia canadensis</i>) Coneflower (<i>Echinacea purpurea</i>)</p> <p>C</p>	<p>Smooth Blue Aster* Butterfly Milkweed* (<i>Asclepias tuberosa</i>) Blazing Star (<i>Ipomoea spectabilis</i>)</p> <p>SBA</p>	<p>Yellow Joe-Pye* Fragrant Blackberry (<i>Rubus odoratus</i>) Common Milkweed (<i>Asclepias syriaca</i>)</p> <p>JPW</p>	<p>Purple Coneflower* Brown-eyed Susan* (<i>Rudbeckia hirta</i>) Anemone-like purple/black/white (<i>Thalictrum flavum</i>)</p> <p>CF</p>	<p>Red Chokeberry* New Jersey Tea* (<i>Ceanothus americanus</i>) Wineberry Holly (<i>Ilex verticillata</i>)</p> <p>RC</p>	<p>Mass Phlox* Robin's Plantain (<i>Erigeron philadelphicus</i>) Lynxleaf Sage (<i>Salvia spaldingii</i>)</p> <p>MP</p>
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Why Plant Natives?

ENJOY A BEAUTIFUL LANDSCAPE
The many textures, colors and habits of native plants can be combined in attractive designs. Choose a natural-looking or more formal style.

PRESERVE MARYLAND'S BIODIVERSITY
Many bees provision their nests with pollen from native plants, and butterflies and moths eat native species at the larval stage. Birds, in turn, feed an abundance of these caterpillars to their young. Going native supports this whole food web.

IMPROVE WATER QUALITY AND REDUCE YOUR CARBON FOOTPRINT
Conventional gardens often employ fertilizers, pesticides, supplemental water, and fossil-fuel-using machinery - resulting in poor soil health, erosion, and polluted stormwater runoff.

How You Can Help Pollinators

PROVIDE FOOD
Plant a succession of native blooms of different shapes, sizes and colors, from spring to fall. Choose native species over cultivars when possible. Plant densely, using native groundcovers as "green mulch," leaving some bare soil for the 70 percent of native bees that nest in the ground. Plant in drifts of 3 or more plants to be noticed by pollinators.

PROVIDE WATER SOURCES
Include mud-puddling areas for butterflies. (Refresh water often to deter mosquitoes.)

PROVIDE SHELTER
Add nesting sites for bees, caterpillars, and others by leaving fallen leaves when possible and incorporating dead wood (sticks, logs, stumps) into the garden.

SAFEGUARD POLLINATOR HABITAT
Action 1: Control invasive plants
Action 2: Avoid pesticides when possible

Pollinator Garden Design Spreadsheet

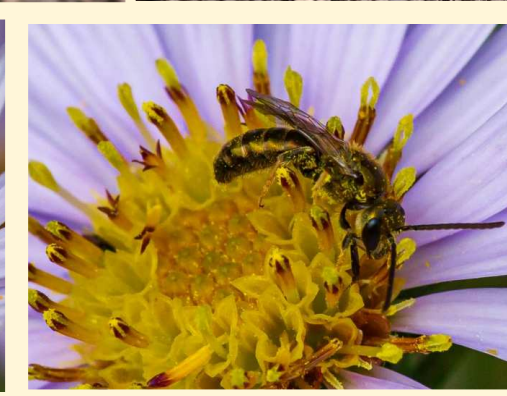
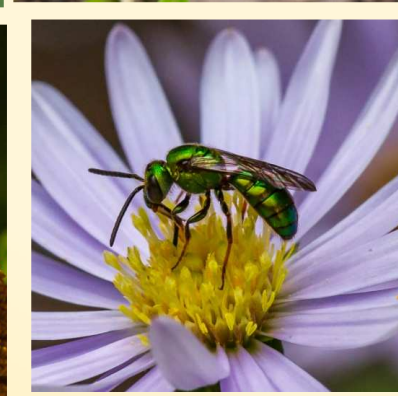
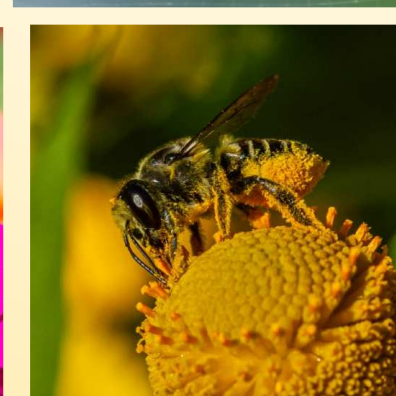
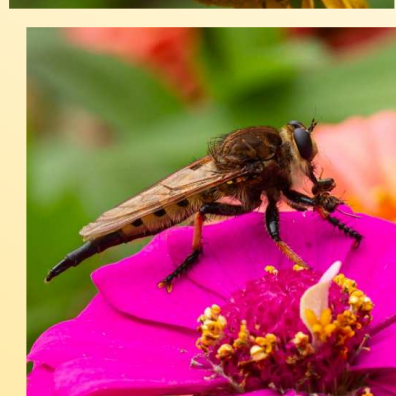
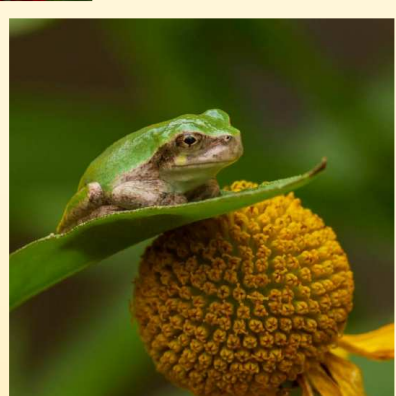
Flowers		Bloom time		Color, Height, Spread			Nectar, Host, Native, H-birds				Perennial, Biennial, Annual			Soil			Sun			Deer Damage Level					Pollinator				Larval host	Comment	
		Bloom start	Bloom end	Color	Height	Spread	Native	Nectar value	Host Plant	Hummingbirds	Perennial	Biennial	Annual	Wet	Moist	Dry	Full	Part sun	Shade	Rarely	Seldom	Occasionally	Frequently	Resistant	Very high	High	Medium	Low			PSU Top20
Actaea racemosa	Common Black Cohosh	6	8	White	4-7'	2-4'	Y	Y	Y	Y	P			M		P	S						X							Host for Spring Azure.	Hummingbirds; flowers have odor that repels some insects; nectar source for sweat and leaf-cutting bees, beetles and flies.
Agastache scrophulariifolia	Purple Giant Hyssop	7	9	Purple	4-6'	1-2'	Y	Y	Y	Y	P			M	F	P								X					Host for Summer Azure and two moths.	Nectar host for butterflies, bumblebees, sweat bees, flies and hummingbirds.	
Amsonia tabernaemontana	Bluestar, Blue Dogbane	5	6	Blue	2-3'	2-3'	NN	Y	Y		P			M	F	P		R											Coral Hairstreak	Deer resistant. Member of dogbane family. Selected by the American Horticultural Society as one of the 75 Great Plants for American Gardens.	
Anaphalis margaritacea	Pearly Everlasting	7	8	White	3'	1-2'	NN	Y	Y		P				D	F	P												American Lady, Painted Lady	Nectar host for bees, wasps, flies and beneficial insects.	
Antennaria neglecta	Field Pussytoes	4	7	White	4"	0.5-1'	Y	Y	Y		P			M	D	F	P						X						Host for American Lady and one moth	Evergreen, dioecious, rock garden, nectar source for mining sweat, cuckoo bees and flies	
Apocynum cannabinum	Dogbane, Indian Hemp, Prairie Dogbane, Hemp Dogbane	5	8	White, green, brown	2-4'	1-2.5'	Y	Y	Y		P			M	F	P								X					Host for Snowberry and Hummingbird Clearwing moths and many other moth species.	Nectar source for butterflies, cuckoo, sweat, cellophane, & masked bees, wasps, flies, & beetles.	
Aquilegia canadensis	Eastern Columbine, Wild Columbine	4	7	Red-yellow	2-3'	1-1.5'	Y	Y	Y	Y	P			M	D	F	P	S	R	S	O								Host for 11 butterfly and moth species.	Groundcover, rock garden. Nectar source for bumblebees, sweat bees and hummingbirds.	
Aruncus dioicus	Goat's Beard	4	5	Cream	4-6'	2-4'	Y	Y	Y		P			W	M	F	P	S		S									Host for Dusky Azure and at least one moth species.	Male and female flowers on separate plants;	
Asclepias incarnata	Swamp Milkweed	7	9	Pink	4'	2-3'	Y	Y	Y	Y	P			W	M	F	P		R	S			X	X			8	Family is host for Monarch butterfly and 11 moth species.	Nectar source for butterflies, bumblebees, miner, carpenter and sweat bees.		
Asclepias syriaca	Common Milkweed	5	8	Pink	5'	0.7-1'	Y	Y	Y	Y	P				D	F			R					X				Family is host for Monarch butterfly and 11 moth species.	Nectar source for butterflies, bumblebees, miner, carpenter and sweat bees.		
Asclepias tuberosa	Butterfly Milkweed	5	7	Orange	2'	1-1.5'	Y	Y	Y	Y	P			M	D	F	P		R	S			X	X				Family is host for Monarch butterfly and 11 moth species. Butterfly milkweed is host to Gray Hairstreak and Queen.	Nectar source for butterflies, bumblebees, miner, carpenter and sweat bees. Eggs will be laid on other milkweed species before this one is available;		

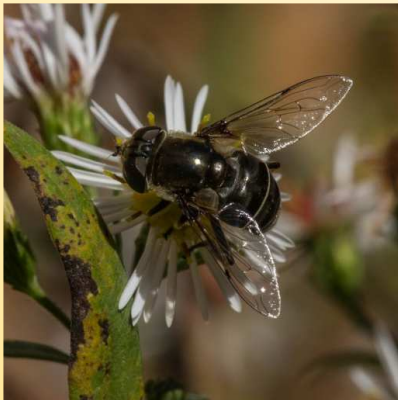
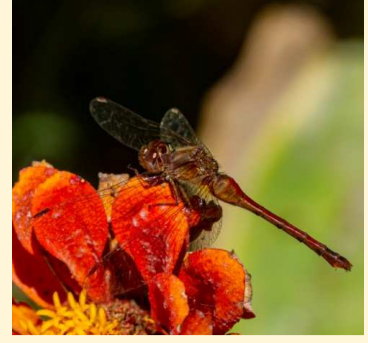
Consider a Pollinator Garden

- Garden design started in December; landscaping work in January; planting in May
- Garden has 185 plants; over 80% are Maryland native plants
- Saw 34 species of butterflies in the first year and lots of bees



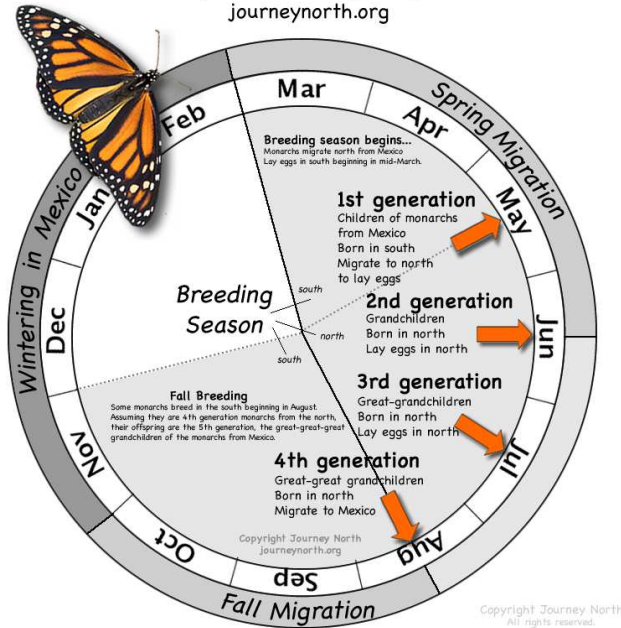
Heffernan Garden Design



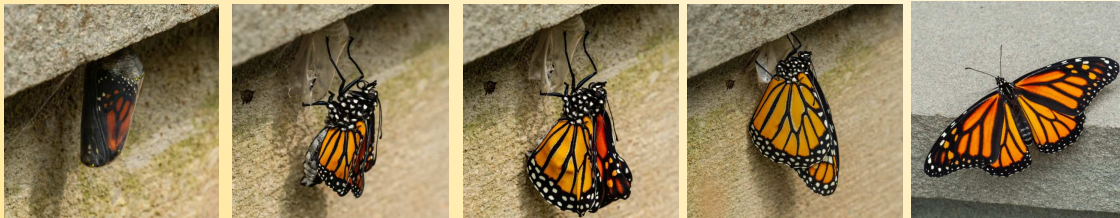
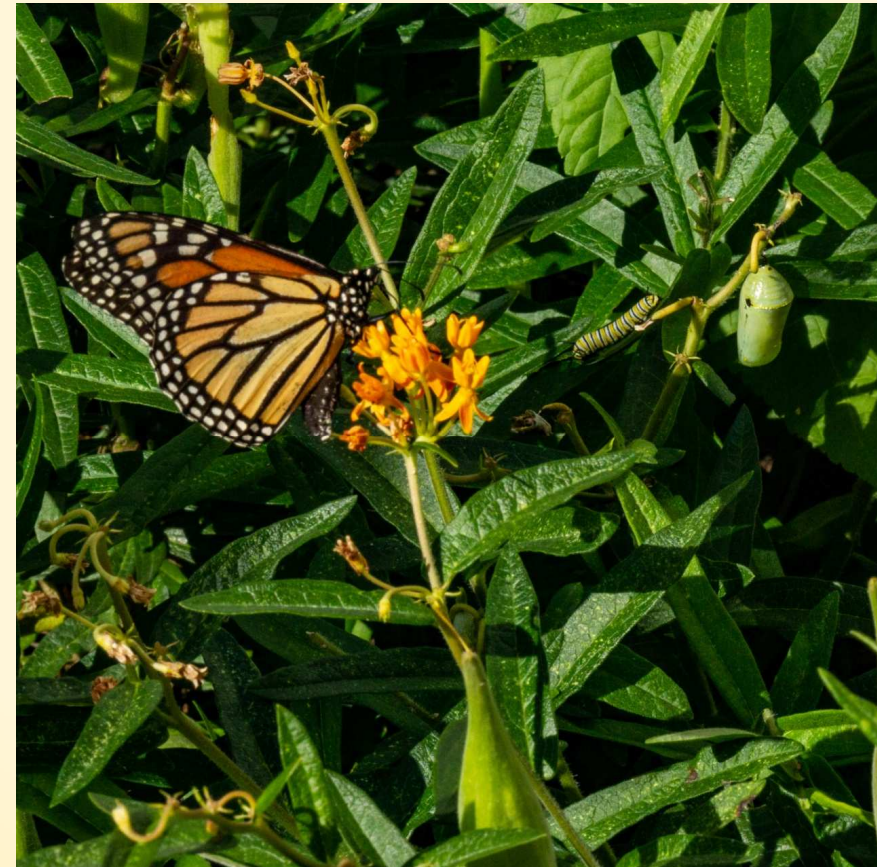


Monarch Cats, Pupa and Adults

Report Your Sightings!
journeynorth.org

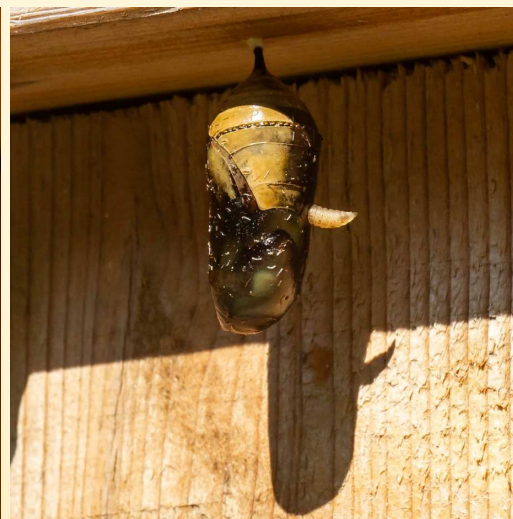
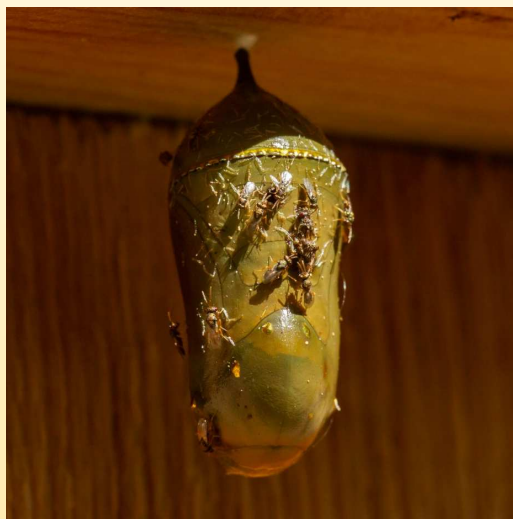
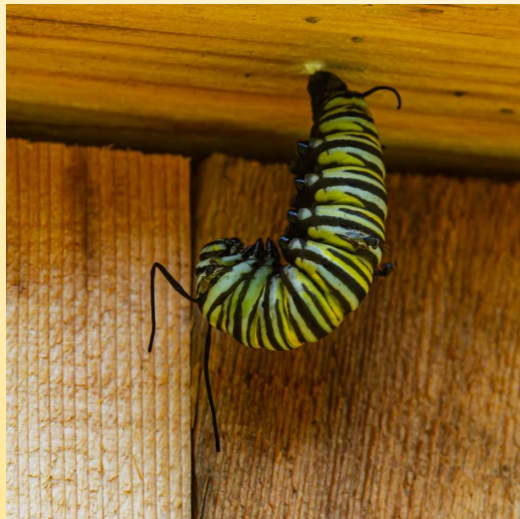


Kathy Kaberle: "I report to Journey North to add to their data. Over the past two weeks I collected about thirty caterpillars to use for the Project Monarch Health OE testing study so they will be eclosing over the next days to a week or so."



Monarch Predators

- >60 Monarch caterpillars, 32 pupa found, seven eclosed. The rest were predated by Tachinid flies or Chalcid wasps.
- Only 1 or 2 butterfly eggs out of 100 live to become adult butterflies.

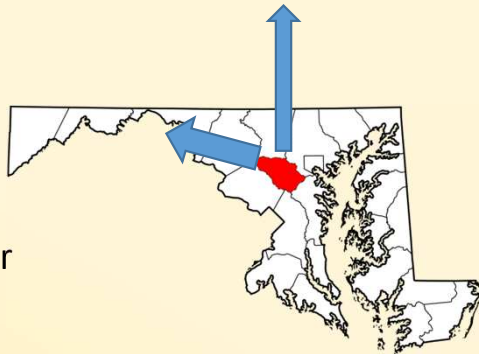


Chalcid wasps (1, 2) and Tachinid flies (3) are parasitic, laying eggs on the caterpillar or on the recently formed, soft pupa.

Butterflies that have left Howard County and ones that are arriving

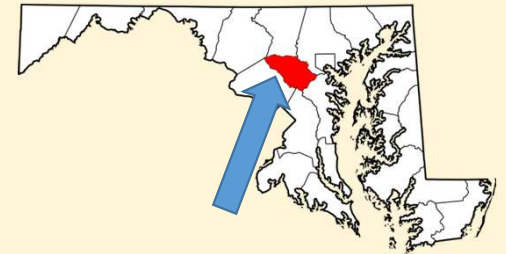
Butterflies that are no longer in Howard County or are extremely rare

- Hoary Edge
- Dreamy Duskywing
- Sleepy Duskywing
- European Skipper
- Leonard's Skipper
- Delaware Skipper
- **Mulberrywing**
- Black Dash
- Common Roadside-skipper
- **Little Yellow**
- *Striped Hairstreak*
- Brown Elfin
- *Northern Oak Hairstreak*
- **Spring Azure**
- Appalachian Azure
- Regal Fritillary
- Silver-bordered Fritillary
- *Baltimore Checkerspot*



Butterflies that are increasing in numbers in Howard County

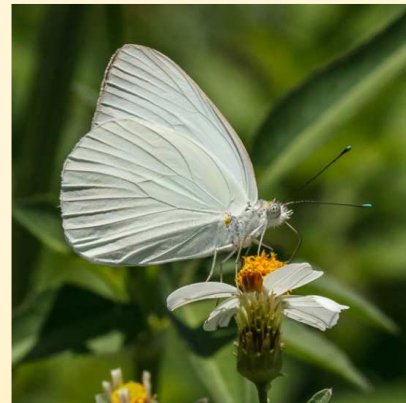
- **Clouded Skipper**
- **Fiery Skipper**
- **Southern Broken-dash**
- Broad-winged Skipper
- **Brazilian Skipper**
- **Ocala Skipper**
- **Pipevine Swallowtail**
- **Giant Swallowtail**
- **Cloudless Sulphur**
- **Sleepy Orange**
- **Dainty Sulphur**
- Juniper Hairstreak
- Henry's Elfin
- **American Snout**
- **Silvery Checkerspot**
- **Tawny Emperor**



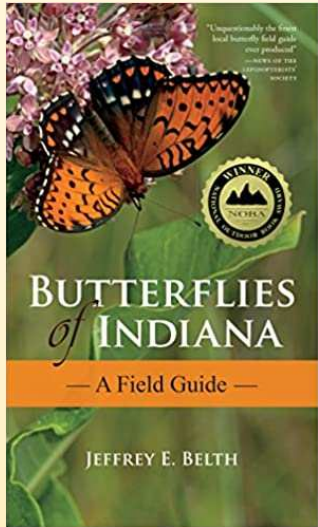
Next New Species??

• *Eight people were asked to give their best guess as to the next new species of butterfly for the Howard County Butterfly survey. Here are the results.*

- **Gulf Fritillary (6)**
- **Delaware Skipper (5)**
- Hoary Edge (4)
- **Dion Skipper (2)**
- Eufala Skipper (2)
- Brown Elfin (2)
- Sleepy Duskywing (1)
- **European Skipper (1)**
- **Great Southern White (1)**
- Large Orange Sulphur (1)
- Appalachian Tiger Swallowtail (1)
- **Palamedes Swallowtail (1)**
- **Striped Hairstreak (1)**
- Northern Oak Hairstreak (1)
- Baltimore Checkerspot (1)
- Compton Tortoiseshell (1)
- White Admiral (1)
- **Queen (1)**



Two Butterfly Field Guides to Consider



- The best butterfly field guide out there
- Covers 190 species including all 80 of the butterflies seen in the survey
- Has the best skipper ID section that compares the field marks of similar skippers
- Is smaller than “Butterflies Through Binoculars” and “Butterflies of Pennsylvania”
- Has info on host plants and nectar plants
- Gives flight times, size, habitat, larval host plants, and notes

- Covers 120 species.
- Missing five species that have been historically found in the county
- Larger than “Butterflies of Indiana” and “Butterflies Through Binoculars”
- Gives flight times, number of broods, size, habitat, larval host plants, what stage it overwinters as, and notes
- Species identification notes are weak
- Worth having in your library but, for me, it wouldn’t be the field guide that gets used in the field

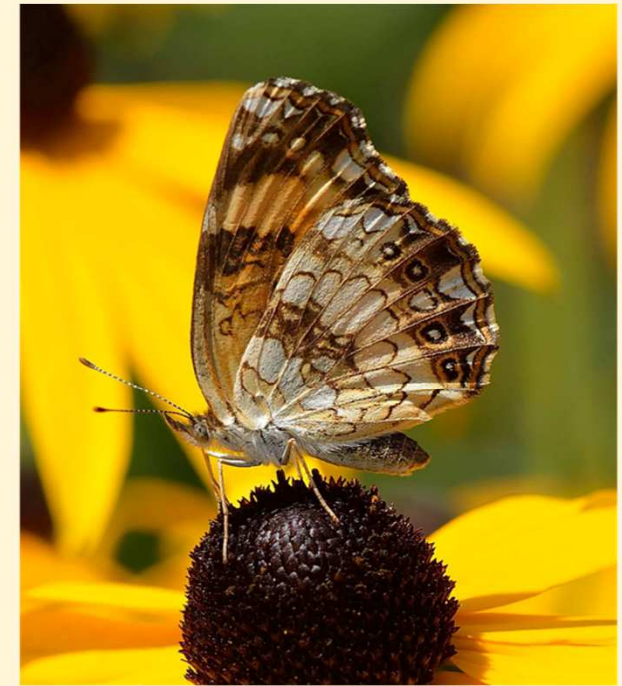
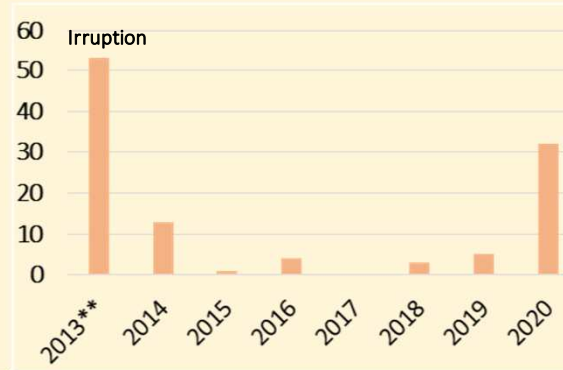


Butterfly of the Year

Silvery Checkerspot

Silvery Checkerspot (14-2*) Rare: E-Jun to Aug Wood trails along rivers Sunflower Wingstem & wild sunflower

Three still shots taken from a video by Robert Schaefer at his home
[View the video](https://www.youtube.com/watch?v=njXopA9JyAo)
<https://www.youtube.com/watch?v=njXopA9JyAo>



Flies in L-June through July, L-August through September
 Overwinters as 3rd stage larvae

Sightings Locations:

private gardens (Kaberle, Perna, S. Smith, Blum, Orr, McClures)

river edges: Patuxent Branch Trail (August), Murray Hill (August) David Force (June & August)
 Mt. Pleasant (April), Westside Gardens (August), Vantage Point Rd/Columbia (August)

Encourage plantings of host plants: *wingstem (Verbesina alternifolia)* and *Rudbeckia* spp.
 in gardens and native habitats

Thank You Participants



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