The 2022 Howard County Butterfly Survey

Tawny Emperor ovipositing
Kathy Litzinger

Harvester
Annette Allor

Presentation Dedication

After Dick Smith passed away, Linda Hunt took on the survey chair role and kept it going for several years with her combination of indomitable spirit, work ethic and people skills that effortlessly drew people in. She stepped down this year from the detailed data gathering but is still active in leading walks, giving talks, and, by the way, she also turned in the highest number of surveys this year. This butterfly survey is a part of her legacy.

Special Thanks

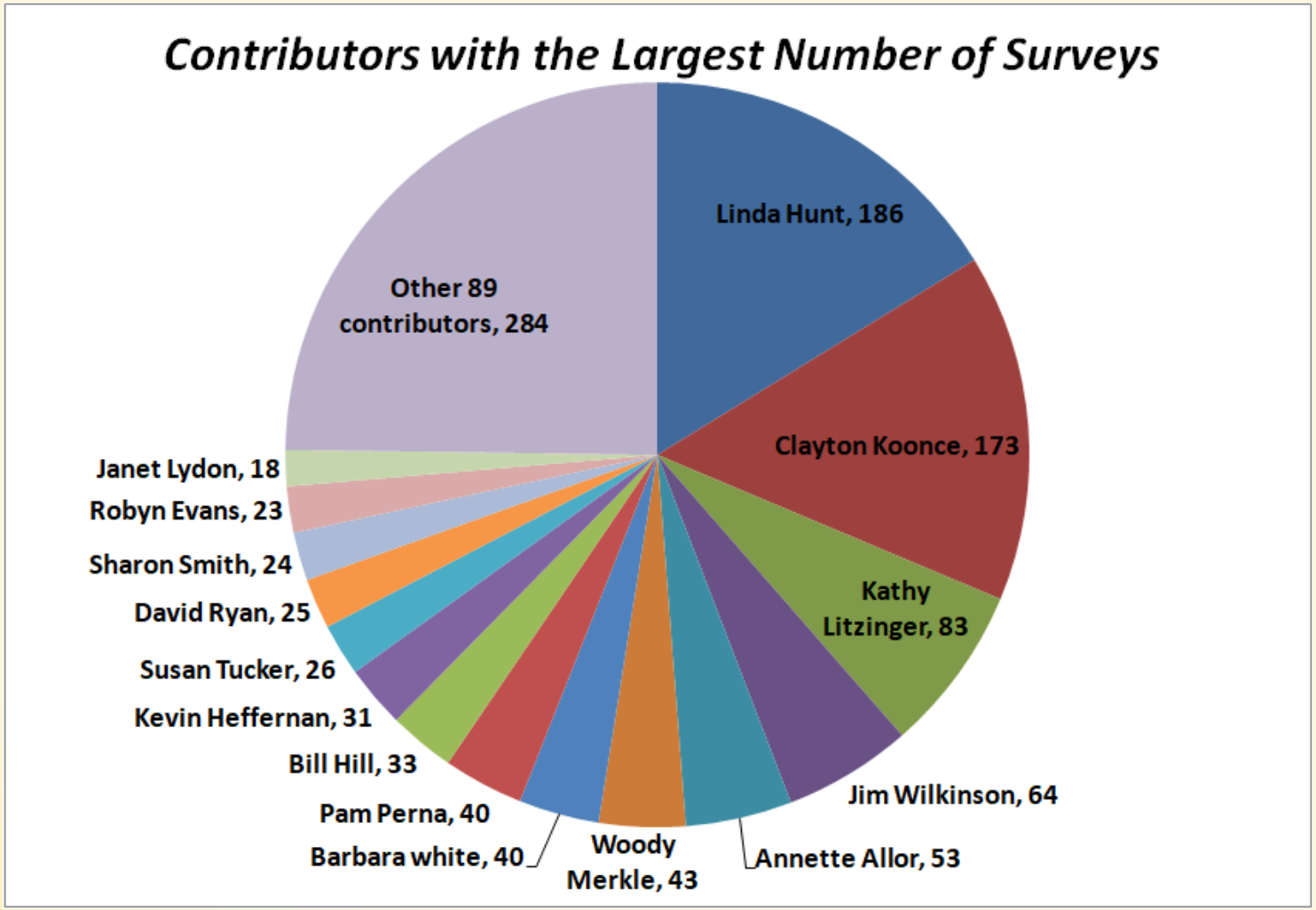
- ***A huge thank you goes out to Kathy Litzinger who took over Linda's role in data collection and organization. Without her, this year of the survey would not have happened.***
- **Another huge thank you to Bob Solem who provides the tools needed to get the data from an email to the spreadsheet where it can be analyzed. He also deals with walk announcements, the photo gallery, posted trip reports and a host of other things.**
- **We hosted seven butterfly walks this year. The leaders make the walks happen. Another big thank you goes to Woody Merkle and to Annette Allor who led several walks and whose expertise made the walks special for the participants. Also, another thank you to Linda and Kathy who also co-led several of the walks.**

Survey Participant List for 2022

2022 Contributors: Lowell Albro-Heffernan, Annette Allor, Andrea Bendig, Gill Bentley, Barbara Berman, Bonnie Bezila, Karan Blum, Alicia Buxton, Indira Carey, Julie Carignan, Shannon Carrecly, Rob Chuang, Michelle Chesnut, Mary Lou Clark, Lisa Colangelo, Beth Cranmer, Fazea Davis, Lysbeth Davis, Robert Davis, Seth Davis, Bob Donaldson, Allen Dupre, Mandy Elder, Robyn Evans, Timothy Foard, Justus Garman, Dana Garrett, Vivian Gentile, Jushs Gorman, Janine Grossman, Tina Grot, Liz Guertin, John & Meg Harris, John Hayes, Karen & Kevin Heffernan, Lee Heikkiner, Kaitlyn Hennacy, Frank Herron, Stephanie Hickey, Bill Hill, Linda Hunt, Veronica Ivey, Martha Johnson, Ella Jordan, Sydney K, Kathy Kaberle, Tina Kim, Terry King, Clayton Koonce, Mark Kratz, Claudia Lafuse, Mary Lenahan, Kathy and Jack Litzinger, Janet Lydon, Mary Maxey, John McKitterick, Connie McRill, Woody Merkle, Diane Miller, Kirsten Moncada, Sue Muller, Cindy Murtinaitis, Anila Naik, Heidi Osterman, Bonnie Ott, Pam Perna, Paul Petkus, Alex Potter, Hailey Potter, Leslie Potter, Maddie Potter, Kaytlin Powell, Sue Probst, Mary Prowell, Tim Reichard, Kate Reilly, Kathy Rickard, Mike Riley, Amy Roberts, Linda Roberts, Mary Roepcke, Ally Rogan, Ann Russo, David Ryan, Kurt Schwarz, Clare Sebok, Sharon Smith, Jo & Bob Solem, Kathy Souders, Susanne Stahley, Tasniya Sultana, Kristin Trouton, Susan Tucker, Roshan Vignarajah, Sherrye Walker, Jiangmei Wang, Kelsey Wellons, Barbara White, Kamala Whitty, and Jim Wilkinson

Another Special Thank you to the Contributors with the Largest Number of Surveys

- There are 214 days between April 1st and Oct 30th. Linda Hunt's 186 and Clayton Koonce's 173 surveys during that time is impressive.
- ***Way overdue thank you to Clayton Koonce for the number of surveys and photos that he contributes each year***
- ***Another way overdue thank you to Jim Wilkinson for his multiyear contribution to this survey***
- There were 1044 surveys submitted by 104 people this year. Multiple names on the same survey raises the number to 1146. ***Six people submitted 50% (602) of the surveys.***
- ***15 contributors (14.4% of the 104 total) submitted 75% of the surveys***
- ***Thanks to all 104 people who contributed to the survey this year***



The 2022 Howard County Butterfly Survey Talk Outline

9-Year Survey Information

- Participation
- Results
- 2022 Survey Highlights
- Species Status
- Species with High and Low Counts
- Pollinator Meadows in the county
- Butterfly walks
- Overwintering Strategies
- Possible Sources of Error
- Photos from participants
- What you can do to help butterflies
- Butterfly of the Year
- Educational Materials / activities
- Survey Goals / Actions Moving Forward

Coordinators: Kevin Heffernan and Kathy Litzinger
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

9-Year Overview – Results

	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total	2022 Rank
Observers	22	48	44	48	59	62	48	73	104	116	1
Surveys	372	696	715	870	958	748	706	1144	1044	7253	2
Duration(min.)	19970	19437	35924	50196	55787	49242	40684	61027	56668	388935	2
Species	68	70	75	70	71	73	70	69	70	80	4
Butterflies	10360	17570	21622	25053	25245	26258	20828	25897	23083	195916	5

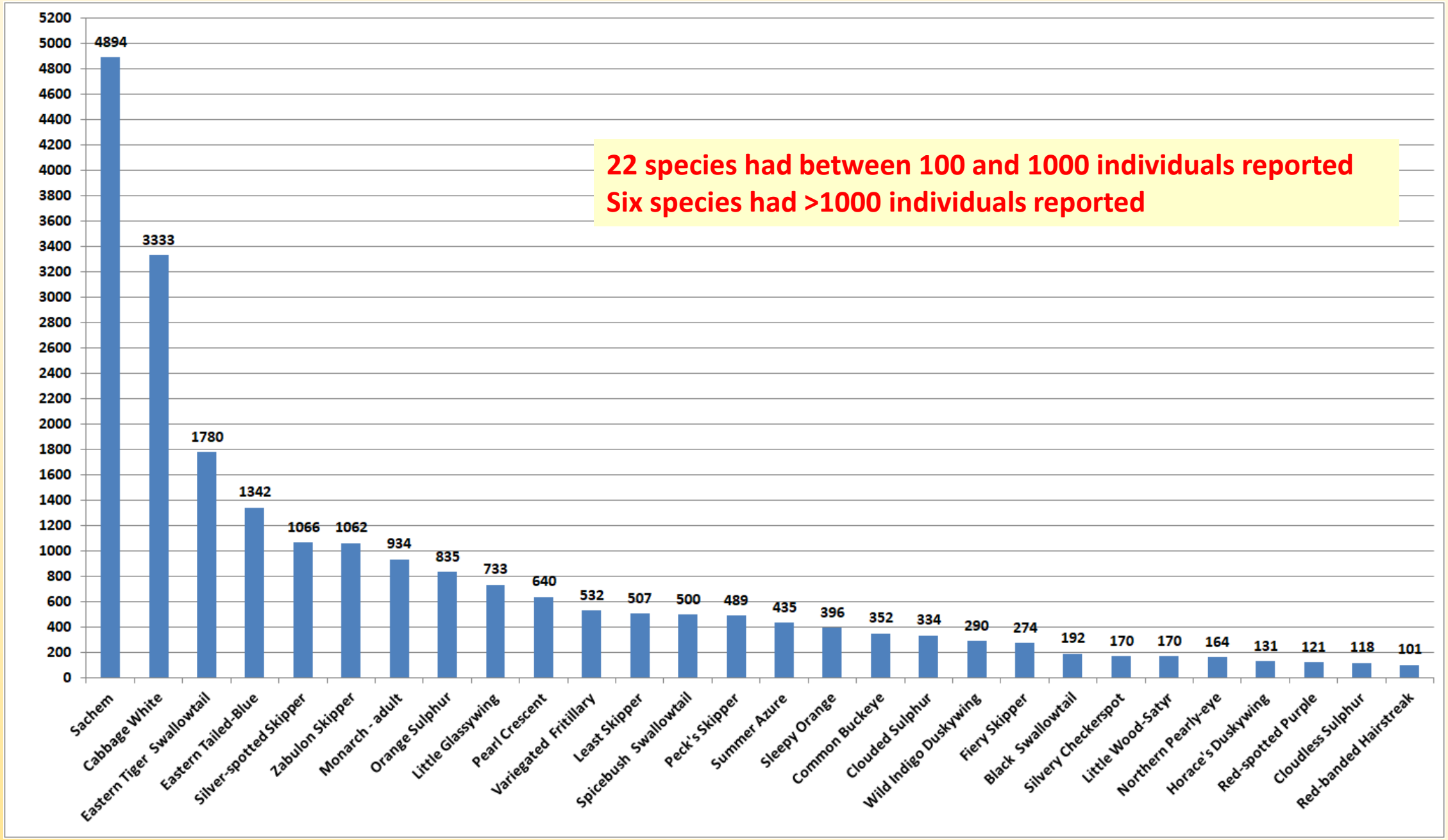
- **Highest # of observers in 2022. Second highest # of surveys and duration in the field. Participation in the survey is strong and growing.**
- **The total number of observers (116) is an old number and is seriously undercounted.**
- **Total # of species observed is 80 with the highest number in any year being 75 in 2016.**
- ***Have seen > 195,000 individual butterflies*. Will exceed 200,000 in 2023.**
- **This amount of data has allowed us to plot flight times, early / late dates, etc.**
- ***388,935 minutes = 6482 hrs = 162 40-hour weeks = 3+ years***

Some Highlights From the 2022 Butterfly Survey

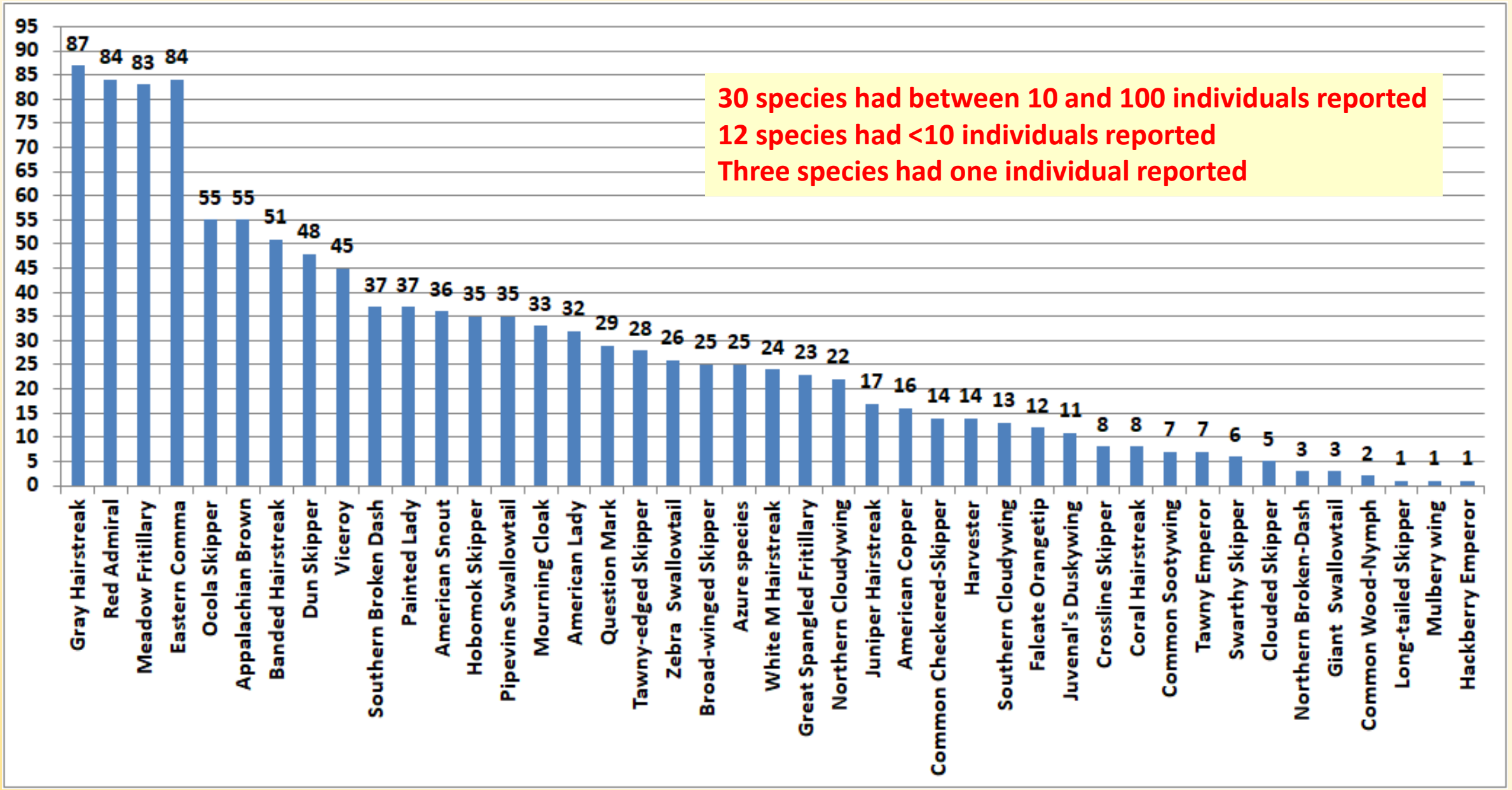
Zebra Swallowtail
Annette Allor

- 70 species seen; no new species for the survey this year
- High counts for 12 species and second highest count for 12 more (34%)
- Low count for 4 species and second lowest for 5 more (13%)
- Did not find Dusted Skipper for fourth year in a row
- Mt. Pleasant added a new species, Zebra Swallowtail. List now totals 68 species
- Found only one Long-tailed Skipper, Mulberry Wing and Hackberry Emperor
- Between 2015 and 2021, 11 Harvesters were reported. This year alone, we saw 14.
- Great Spangled Fritillary numbers continue to drop
- American Copper, Common Checkered Skipper & Tawny-edged Skipper are species to be watched
- Silvery Checkerspots & White M Hairstreaks continued their strong showing from last year
- After two down years, Broad-winged Skipper more than doubled its previous peak
- More Pipevine Swallowtails have been seen during the survey than Zebra Swallowtails
- First time that Northern Cloudywing numbers exceeded Southern Cloudywing numbers
- Appalachian Brown numbers in 2022 exceeded the total of the previous five years
- Conducted seven butterfly walks. Several of these had more than 25 participants.
- Published flight times, early/late dates, and overwintering strategies last winter
- Will try to publish host plants and possibly update the Butterflies of Howard County this winter
- Continued working with Bee City to enhance habitat, educate, and promote preservation of bees and butterflies

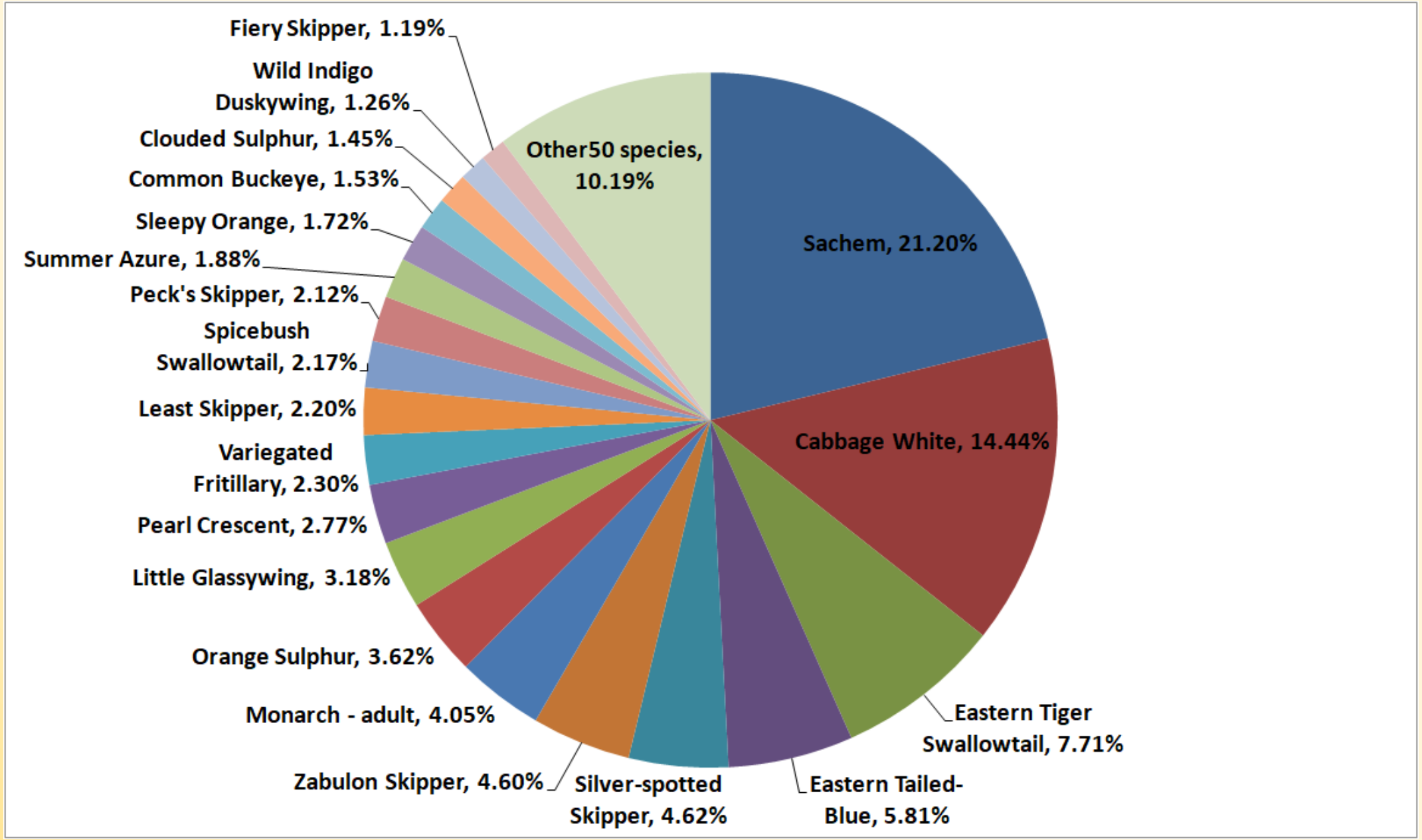
Number of Butterflies by Species



Number of Butterflies by Species



Species Status: Most Numerous Species of 2022

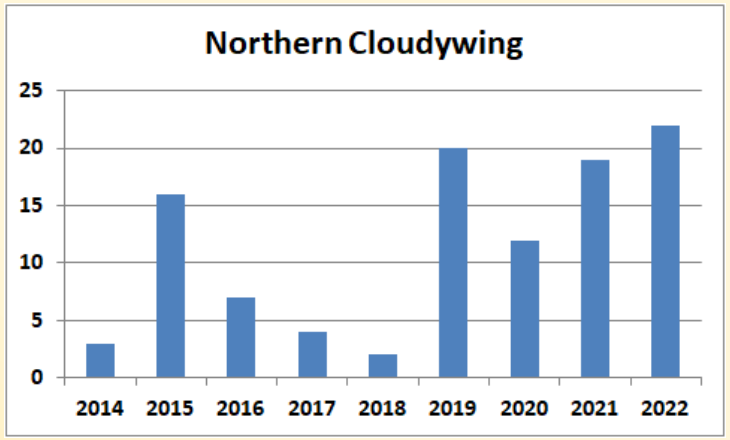


Number of Species Found Each Year

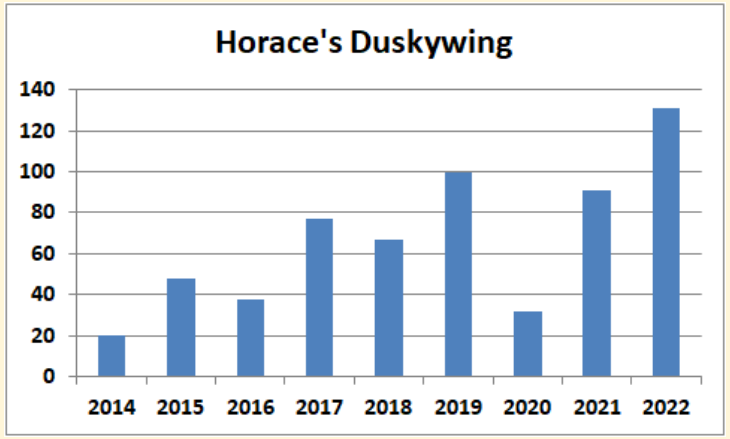
- 61 of the 80 species seen in the survey have been found in all nine years

	2014	2015	2016	2017	2018	2019	2020	2021	2022	
Clouded Skipper (8)		X	X	X	X	X	X	X	X	Seen seven or eight years. Will most likely be seen most years.
Cloudless Sulphur (8)		X	X	X	X	X	X	X	X	
Harvester (8)	X	X	X	X	X		X	X	X	
American Snout (8)	X		X	X	X	X	X	X	X	
Silvery Checkerspot (8)	X	X	X		X	X	X	X	X	
Long-tailed Skipper (7)			X	X	X	X	X	X	X	
Tawny Emperor (7)			X	X	X	X	X	X	X	
Eastern Pine Elfin (6)	X	X	X	X		X	X			The number of these six species seen will determine the total number of species in a given year
Mulberry wing (5)		X	X			X		X	X	
Dusted Skipper (5)	X	X	X	X	X					
Giant Swallowtail (5)	X		X	X		X			X	
Little Yellow (4)		X	X			X		X		
Checkered White (2)			X		X					
Hayhurst's Scallopwing (1)		X								Species only seen once in nine years. Are unlikely to be seen most years
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	70	70	

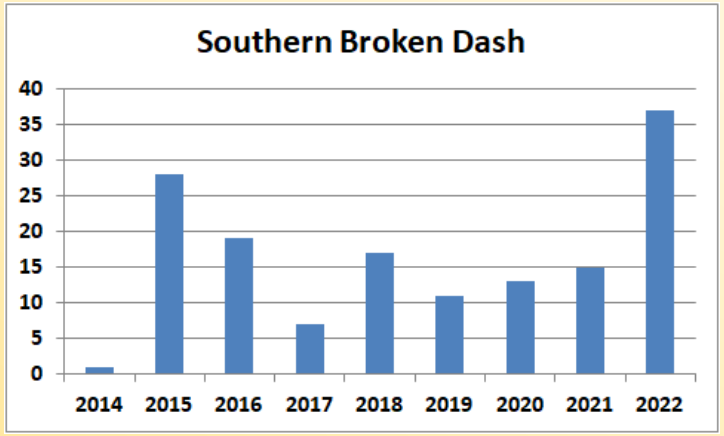
Species Status: Highest Annual Count in 9-Years



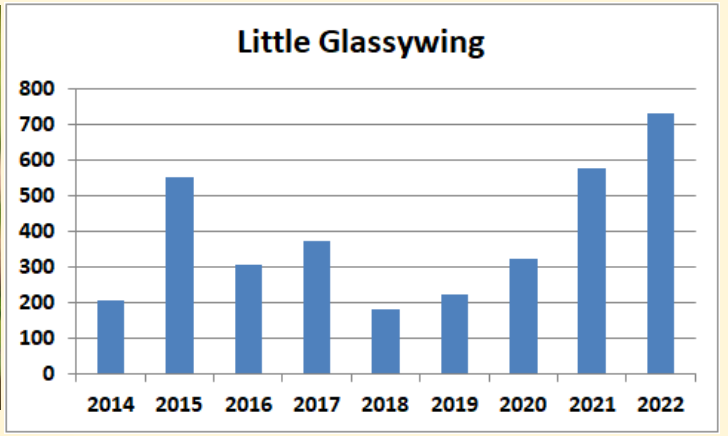
Northern Cloudywing
Annette Allor



Horace's Duskywing
Clayton Koonce

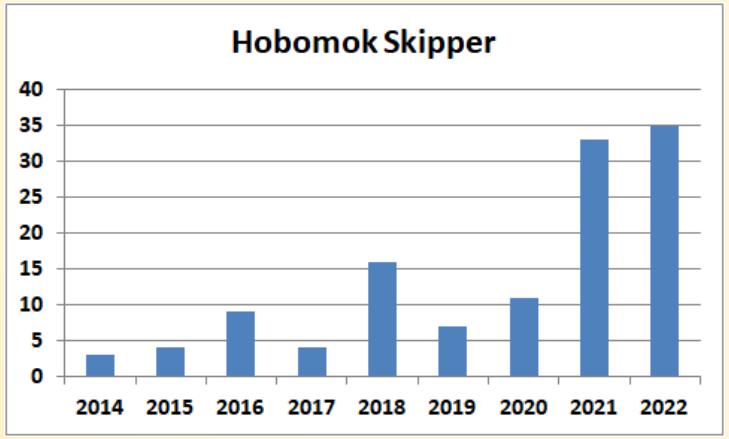


Southern Broken-Dash
Clayton Koonce

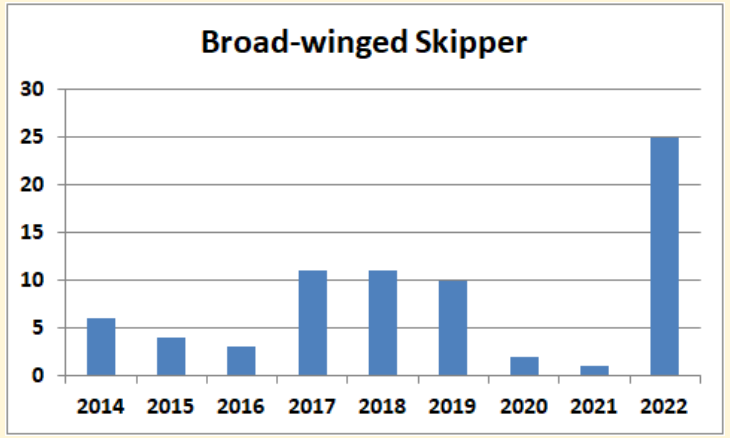


Little Glassywing
Pam Perna

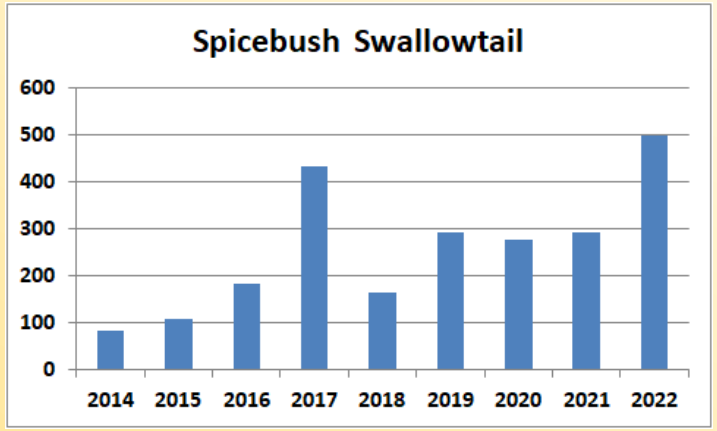
Species Status: Highest Annual Count in 9-Years

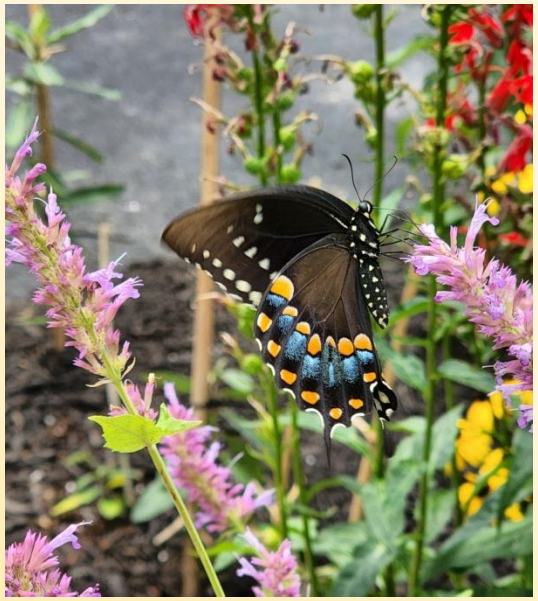


Hobomok Skipper
Pam Perna

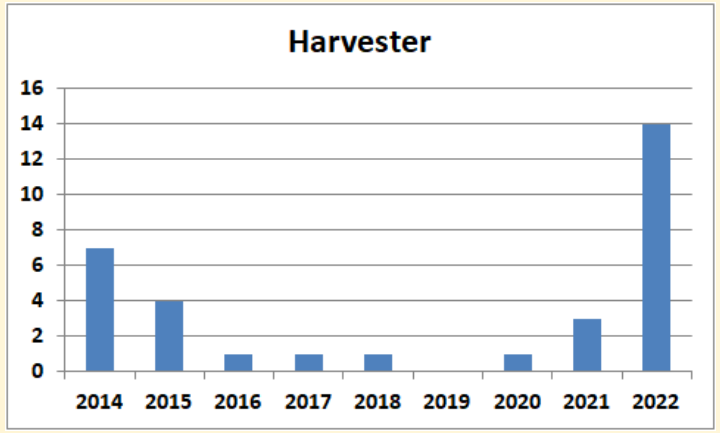


Broad-winged Skipper
Bonnie Ott



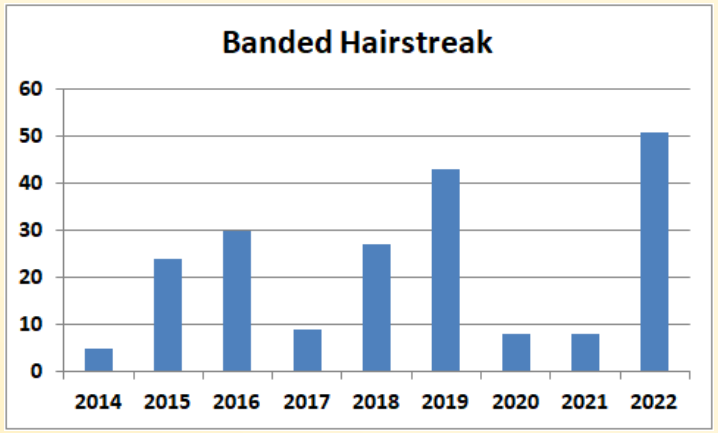


Spicebush Swallowtail
Joe Greenseid

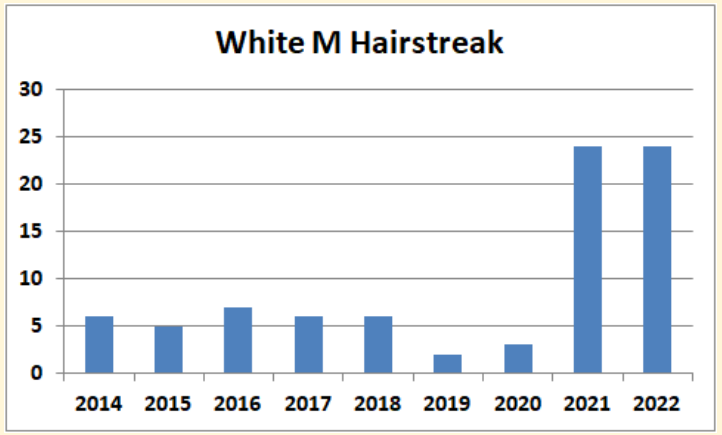


Harvester
Annette Allor

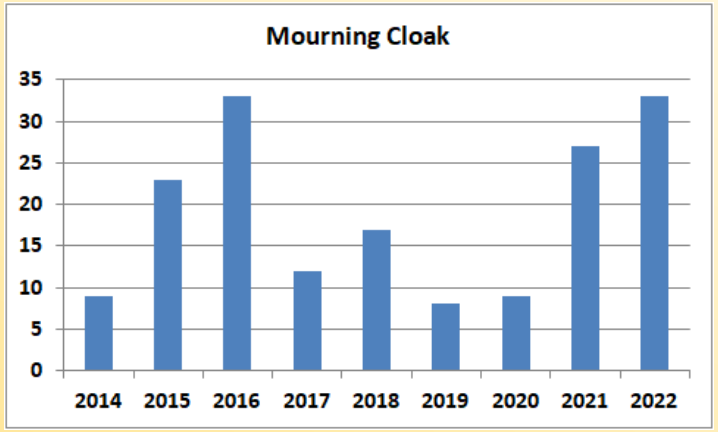
Species Status: Highest Annual Count in 9-Years



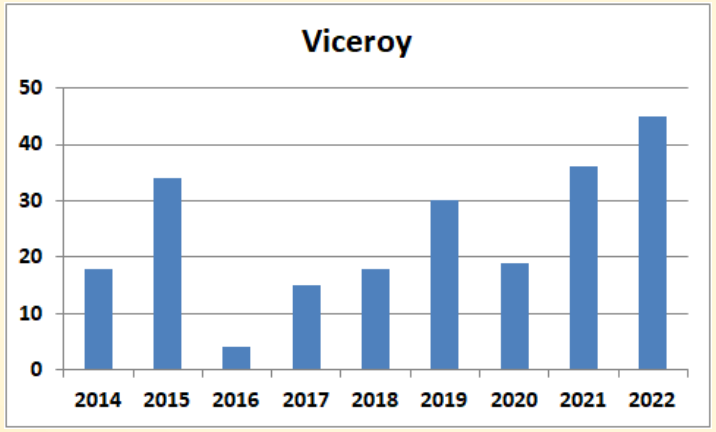
Banded Hairstreak
Amy Roberts



White M Hairstreak
Annette Allor

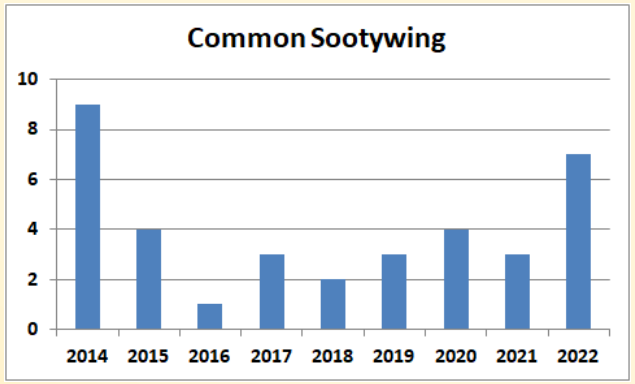


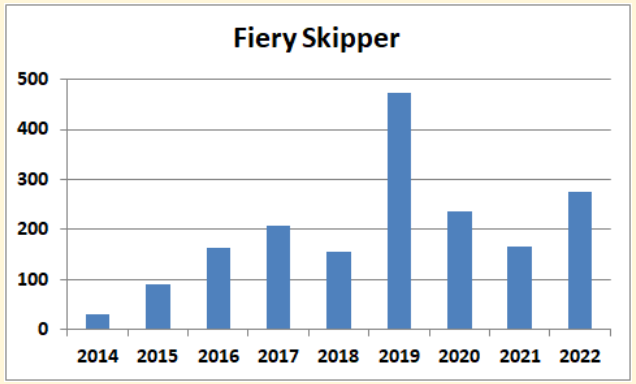
Mourning Cloak
Linda Hunt

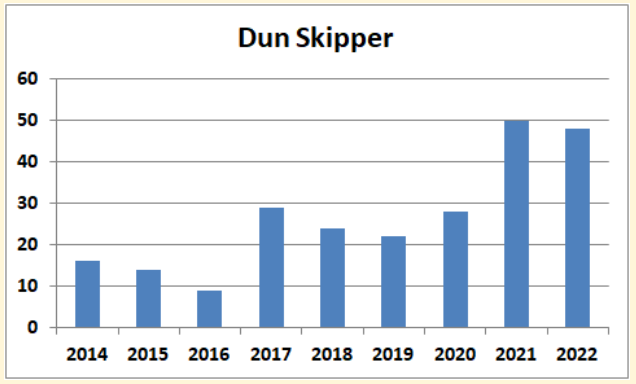


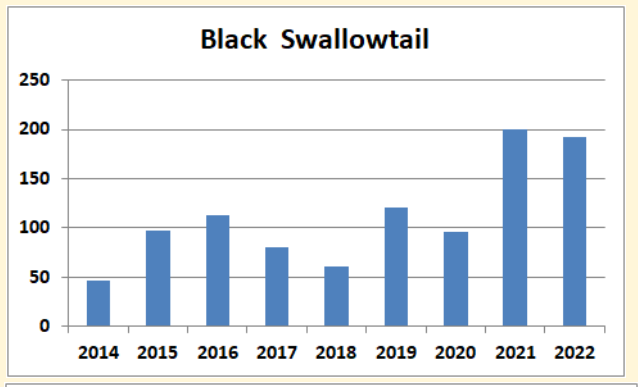
Viceroy
Clayton Koonce

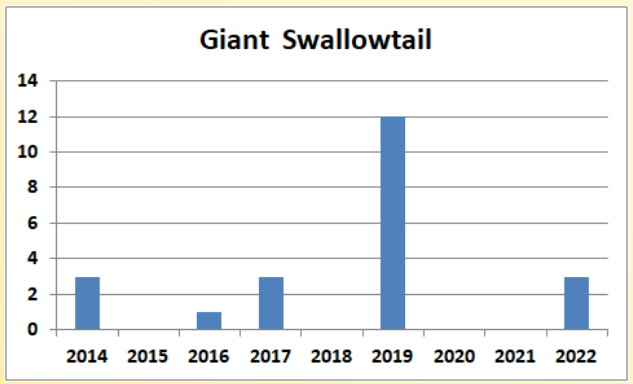
Species with 2nd Highest Annual Count in 9-year Survey

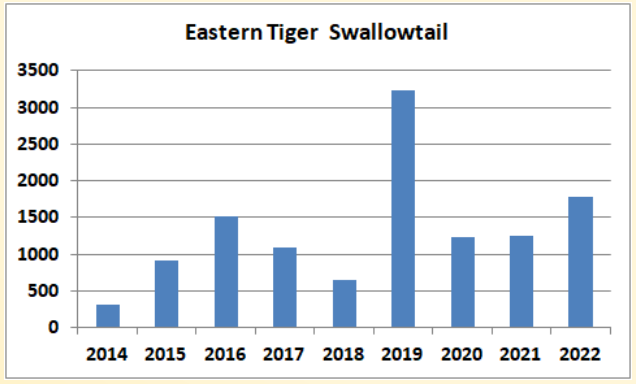


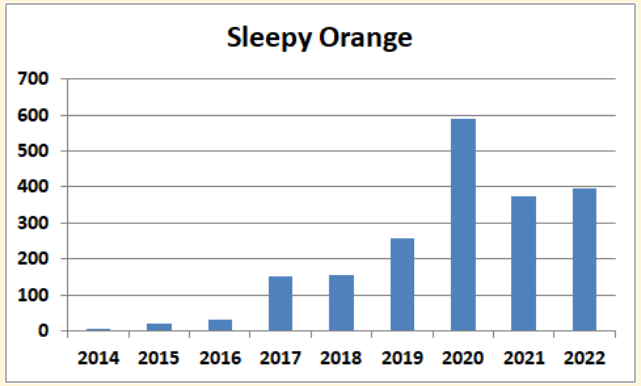


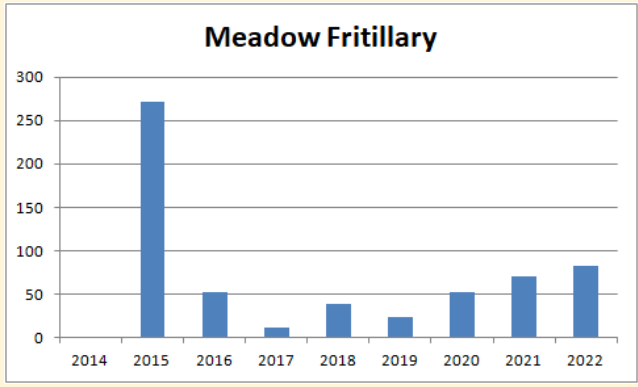


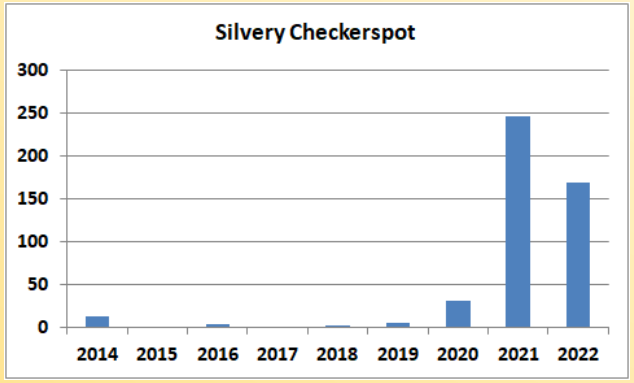


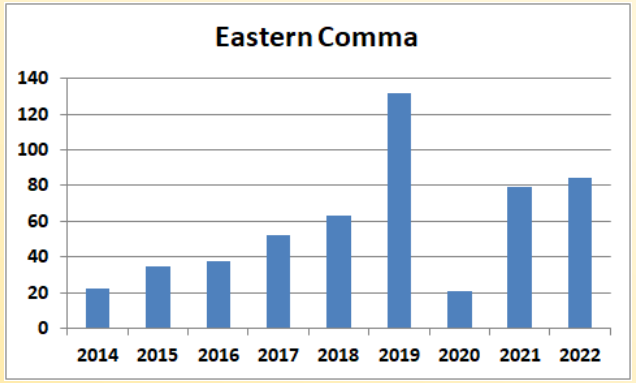


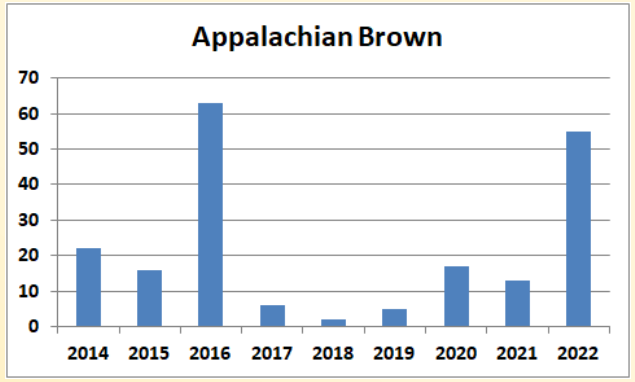


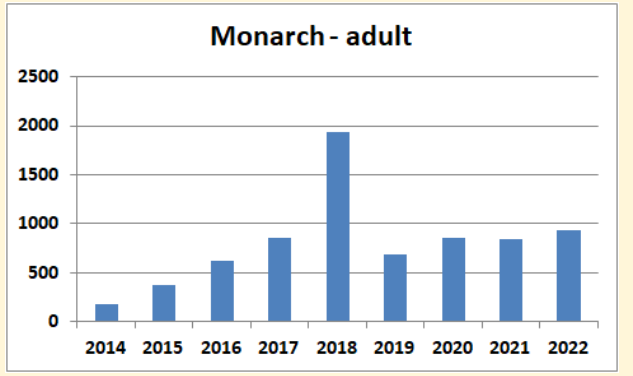




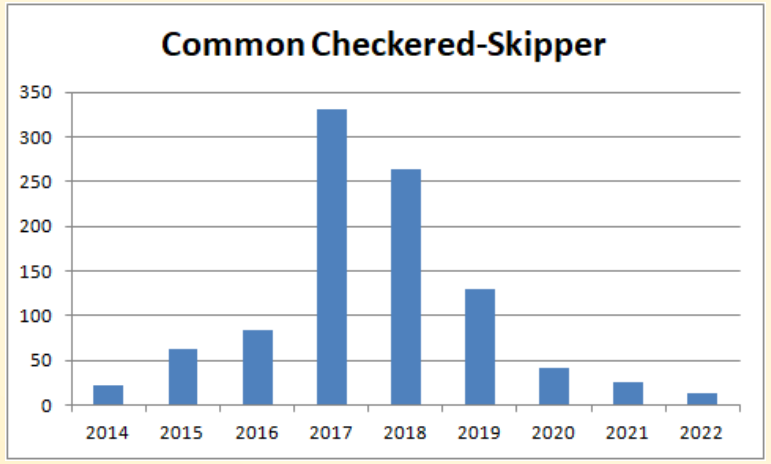




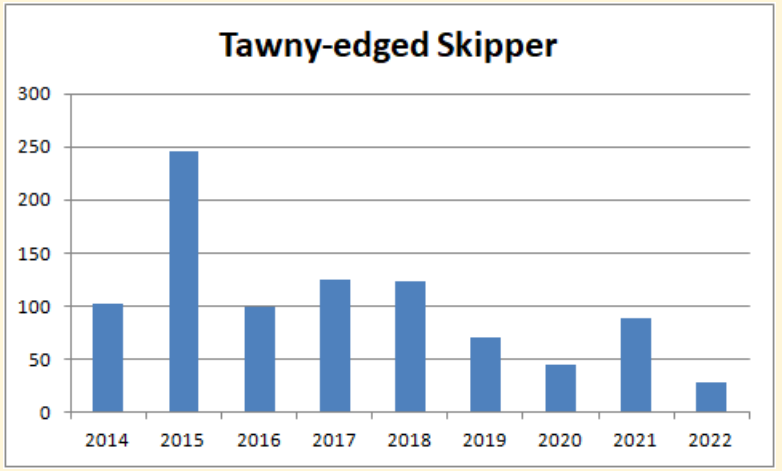




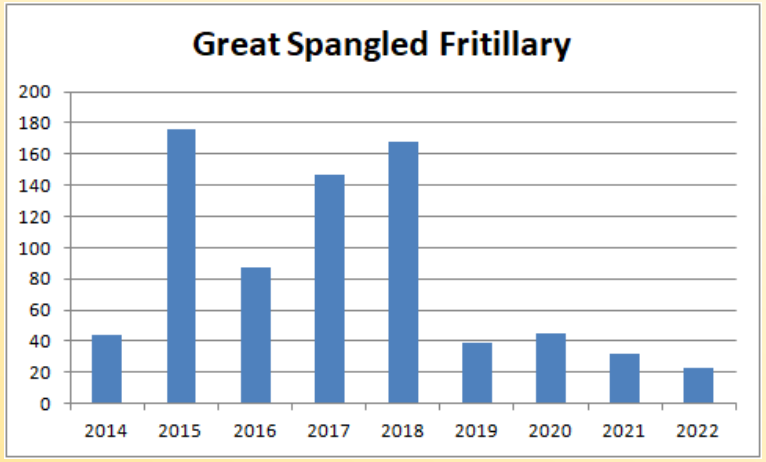
Species Status: Lowest Count in 9-Years



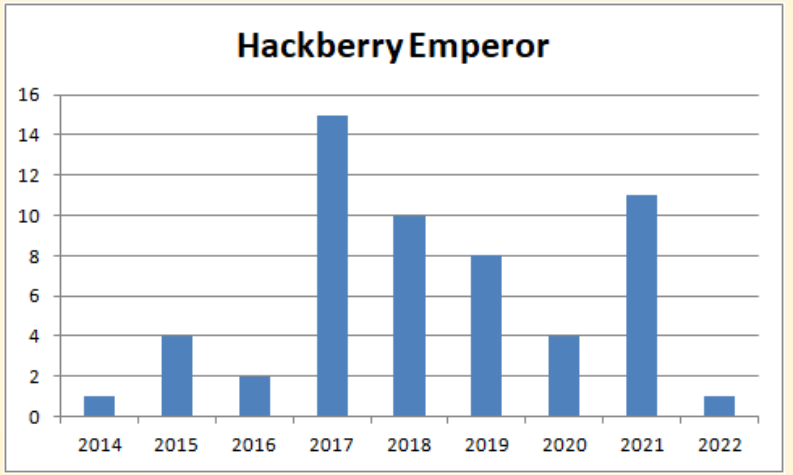
Common Checkered-Skipper
Linda Hunt



Tawny-edged Skipper
Pam Perna

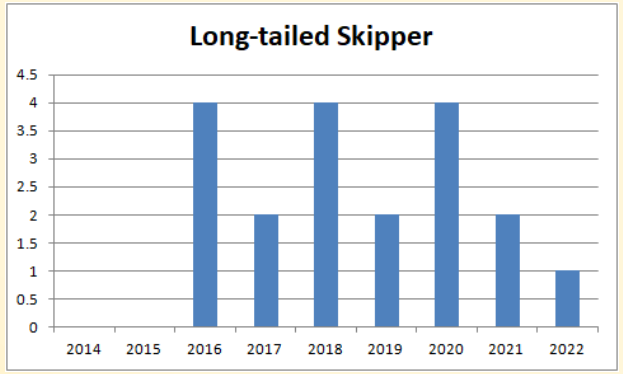


Great Spangled Fritillary
Kevin Heffernan

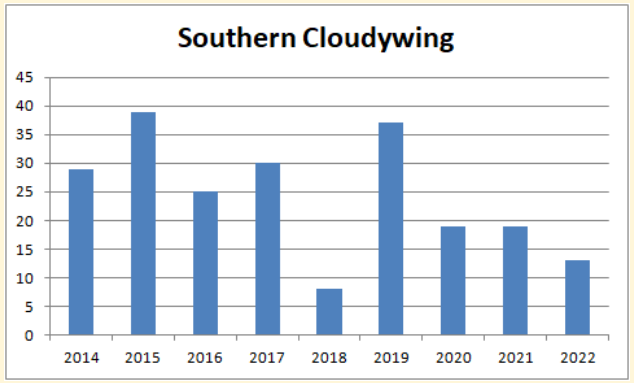


Hackberry Emperor
Annette Allor

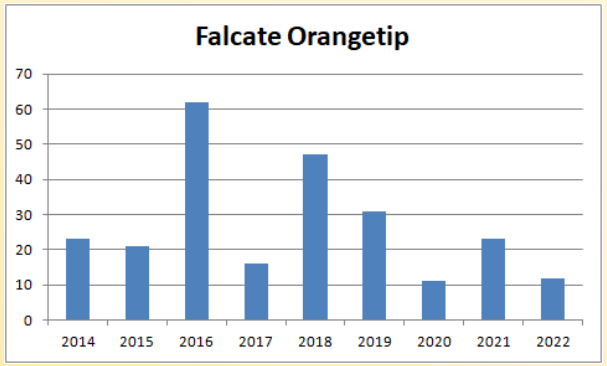
Species Status: Second-lowest Count in 9-Years



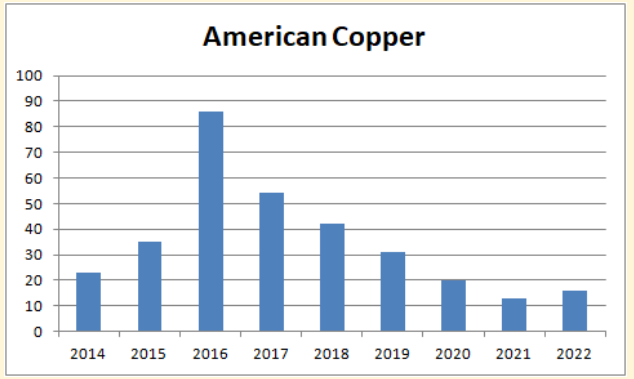
Long-tailed Skipper
Jim Wilkinson



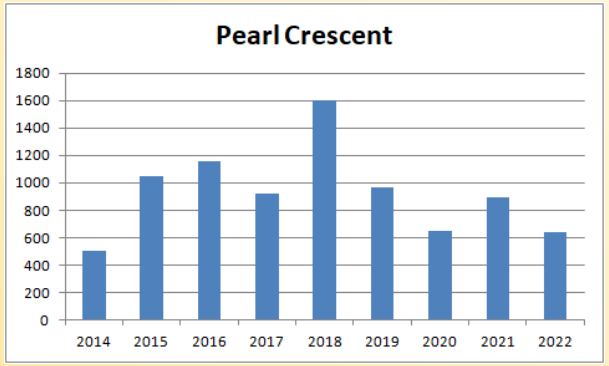
Southern Cloudywing
Annette Allor



Falcate Orange-tip
Jim Wilkinson



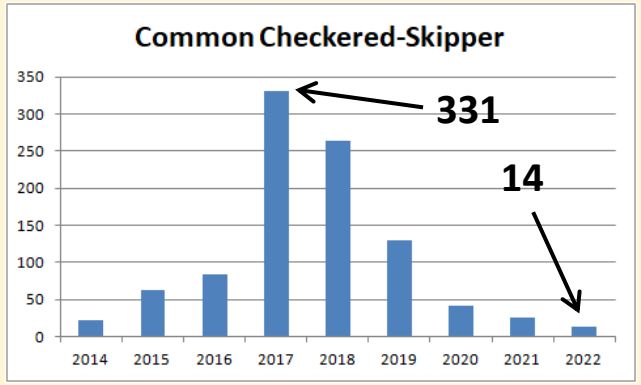
American Copper
Pam Perna



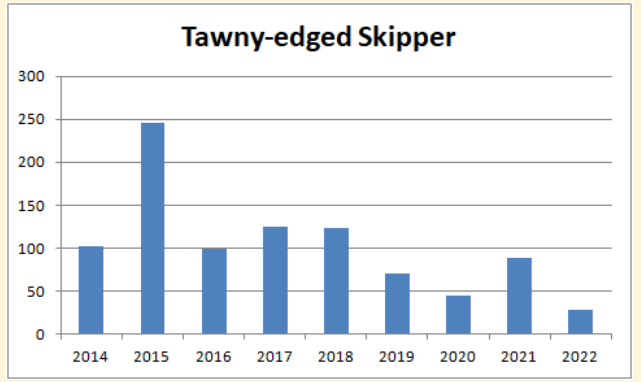
Pearl Crescent
Ann Russo

Species of Possible Concern

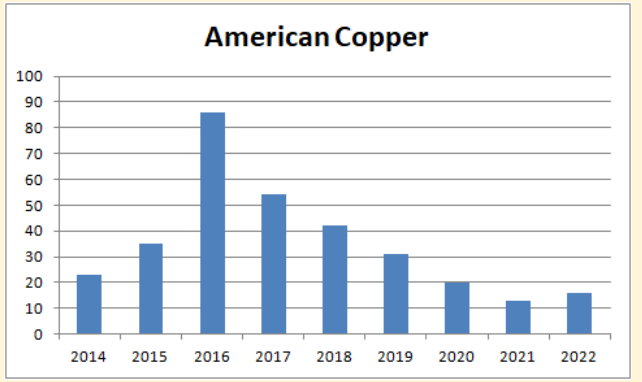
- Common Checkered-Skipper numbers have dropped for five consecutive years. Saw only 14 this year.
- Found in higher numbers in the western part of the county where fewer people are surveying
- Conservation status of S5 (secure) in Maryland



- Tawny-edged Skipper numbers have dropped for four years
- Considered common in the state
- Need to keep an eye on this species

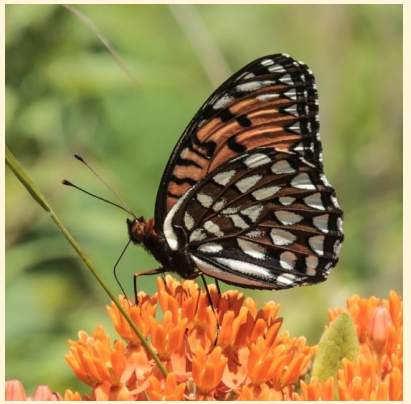


- Total ticked up slightly this year after five straight years of decline
- Also found mainly in the western half of the county
- Has not been seen at Mount Pleasant in several years



Fritillaries Historical and Present

- Historically, Howard County was home to five species of Fritillary: Regal, Silver-bordered, Great Spangled, Variegated and Meadow.
  - Regal Fritillary suffered a severe range contraction in the 70s, 80s and 90s. The last Regal Fritillary in Maryland was found in Fair Hills Natural Resources Management Area in Cecil County in the early 90s. Dick Smith had five records in Howard County in the Maryland Biodiversity Project.
    - All the populations of Regal Fritillary in the Mid-Atlantic region have disappeared except for a small population in southwestern VA and a managed population at Fort Indiantown Gap in PA.
  - Silver-bordered Fritillary also used to be found in Howard County. Dick Smith has one undated record of this species in Howard County in the Maryland Biodiversity Project.
    - In his Butterflies of Howard County, Dick ranks the occurrence level as Rare / Extirpated both in 1993 and again in 2000. By 2012, he rates it as extirpated.

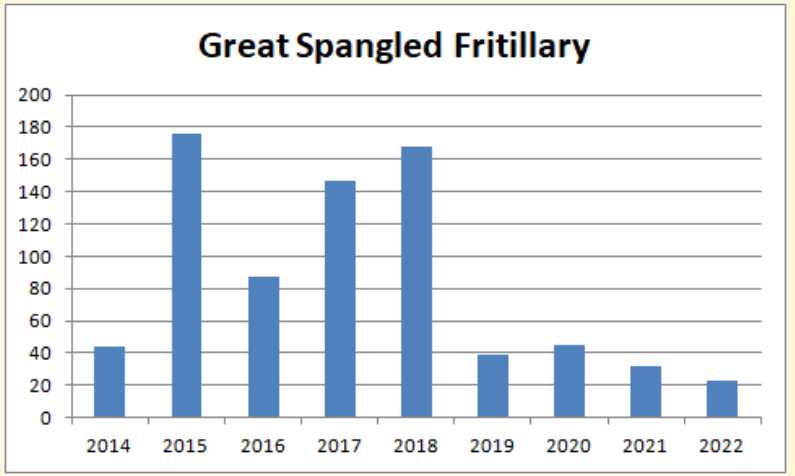


Regal Fritillary
Kevin Heffernan

Great Spangled Fritillary

- Great Spangled Fritillary numbers have dropped dramatically in the county over the last four years.
  - GSF numbers wax and wane. The current hypothesis is that global climate change may be problematic for fritillaries because they might miss the “violet connection” if either the flower or the butterfly appears on the landscape too early.
  - ***[From David Wagner] Also, the life cycle of our large fritillaries seems ill-conceived. Adults mate in June and July. Females lay the eggs in the fall, and only rarely bother to place the eggs on violet leaves. The first instars hatch two to three weeks later, and will drink water, but will not eat for seven to eight months. In the spring, upon awakening, the young caterpillar will eat the new tender leaves of the violet.***
  - ***Few weather the winter. But nature is compensatory—fritillaries are our most fecund butterflies with some species laying over 2,000 eggs.***

Great Spangled Fritillary
Annette Allor

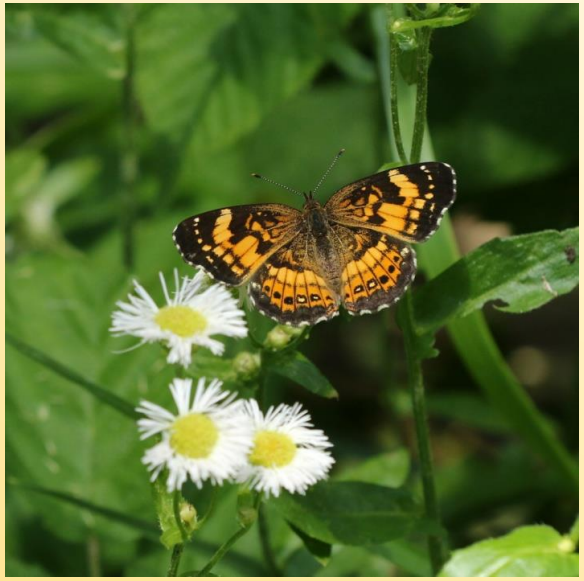


If you needed a good reason to leave your fallen leaves in autumn, this is it! If you remove them, you risk killing these tiny caterpillars.

Great Spangled Fritillary 1st instar caterpillars, 2 mm in length (wildutah website)

Silvery Checkerspots

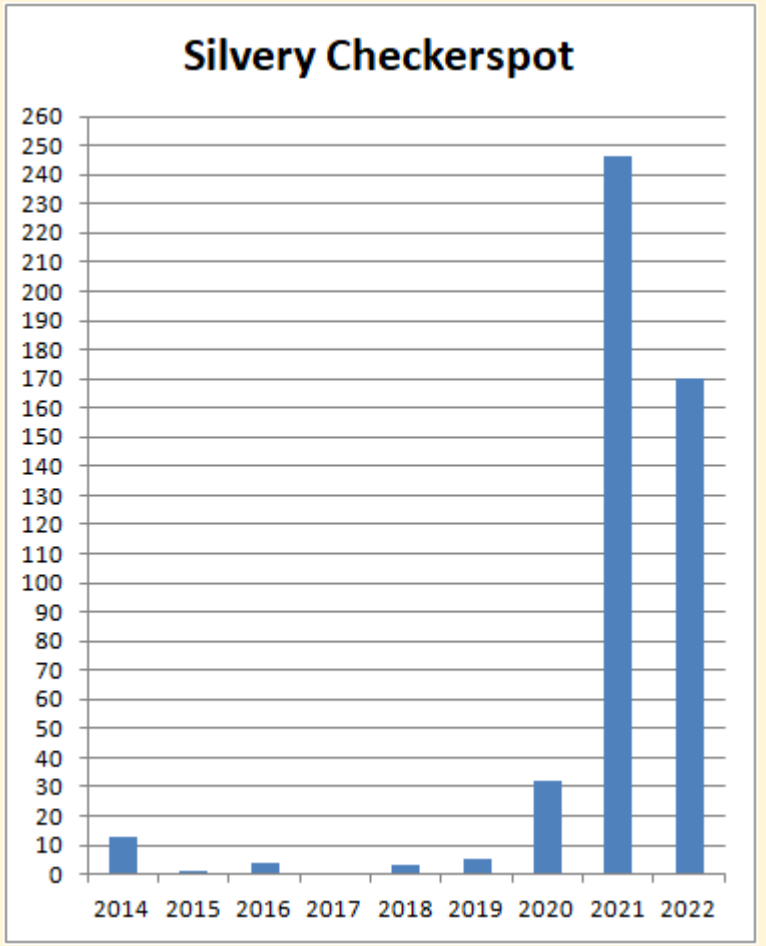
- Highest annual total during the first seven years of the survey was 32 in 2020. It was the Butterfly of the Year last year.
- In 2021, the total was 246 thanks mainly to a single location, Illchester Elementary that Kathy Litzinger found
- They were using Jerusalem Artichoke as the host plant
- The area was obliterated at the end of the year and there was concern that the Jerusalem Artichoke wouldn't come back up this year
- It did come back and the 170 Silvery Checkerspots were reported
- Kathy brought some caterpillars back to her garden where they formed their chrysalises and successfully eclosed



Kathy Litzinger

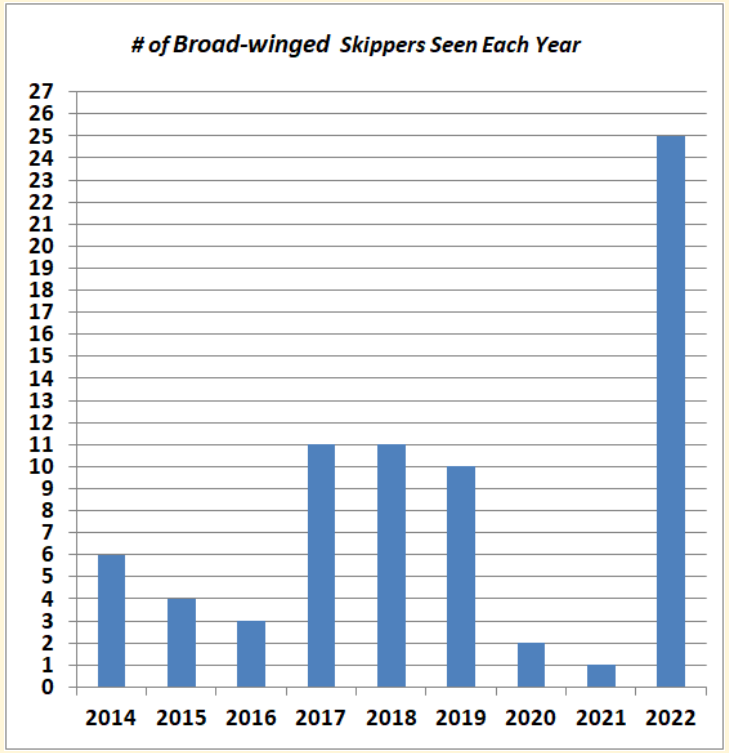
Silvery Checkerspot recently eclosed
Kathy Litzinger

Jerusalem Artichoke
(Kathy Litzinger)



How many other pockets of diversity like this are there in the county?

Broad-winged Skippers (2022)



- First found in the county by Allen Lewis in 2011
- Found each year of the survey but in low numbers
- Between 2014 and 2017, Kathy Litzinger was the only person to find Broad-winged Skippers (mostly in her garden)
- Found only two in the county in 2020 and one in 2021 after the phragmites were cut down near her home
- Goal was to find new pockets of Nectar & Host Plant Habitat
- On June 24th, Kathy and Linda found 10 Broad-winged Skippers at Meadowbrook on milkweed right next to a patch of phragmites (see photo).
- Another six were found there during the summer. Jim Wilkinson also found six at Gateway. Both Kathy (2) and Linda (1) found them in their gardens.
- We went from concern that we are losing them in the county to having the largest peak numbers in the survey in one year.
- This is the beauty of the long term survey

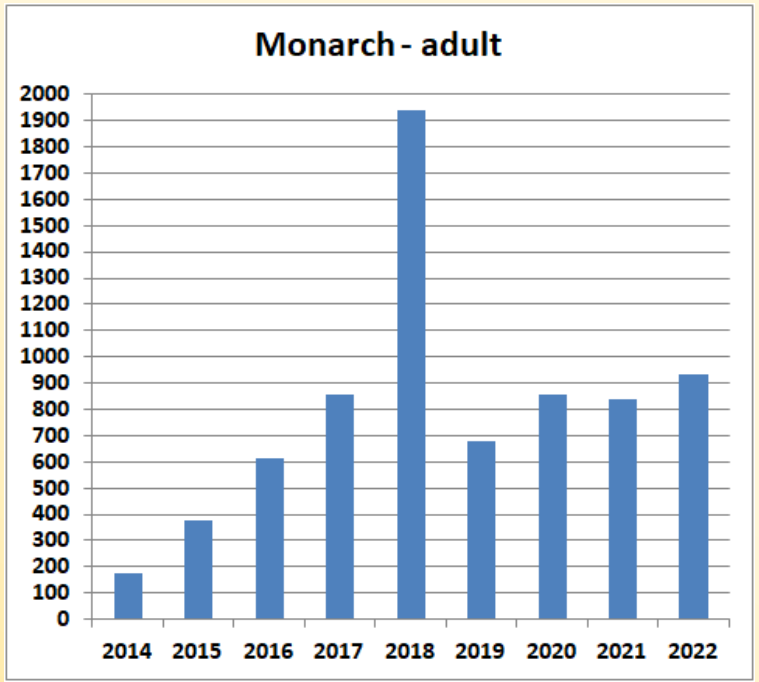
Broad-winged Skipper
Linda Hunt

Broad-winged Skipper
Linda Hunt

Monarch status

- The eastern population of Monarchs shrunk by 84% from 1996 to 2014.
- The International Union for the Conservation of Nature (IUCN) has labeled the Monarch as endangered
- The numbers of Monarchs during the survey however, have been pretty stable since 2017
- During the large peak year of 2018, 1937 Monarchs were recorded
- The 934 seen this year represents the second highest number during the survey
- There are eight pollinator meadows planted and maintained by the Ho Co Dept of Recreation and Parks (see next slide). All are registered as official Monarch Butterfly Way-Station through MonarchWatch.org and has participated since 2010 in this effort to provide monarch habitat, tag and recover tags along the monarch migration routes.

Monarch
Kevin Heffernan



Monarch
Kevin Heffernan

Pollinator Meadows

POLLINATOR PLOTS ON HOWARD COUNTY OPEN SPACE Brenda Belinsky, Natural Resources Division, Department of Recreation and Parks.

Some meadow sites are mowed annually to keep in early successional species; however, as funding has allowed, some sites have been renovated and planted to meadow plant species mixtures to benefit a variety of pollinators. These sites include:

Western Regional Park – 5.0 acre warm-season grass meadow planted in 2000.
Centennial Park – 4.0-acre meadow planted in 2015 with a plant species mix that was generated in consult with the Howard County Bird Club. The HoCo Bird Club paid for the seed mix in this area. A second 1.5- acre meadow area near the west entrance by the tennis courts was converted in 2018.
Daisy Meadow – 1.5- acre meadow established in 2016.
Schooley Mill Park – This park contains 32.0 acres of early succession habitat. In 2018, a 1.0- acre area was converted to the pollinator seed mix used at Centennial. The HoCo Bird Club paid for the seed mix in this area. An additional 1.0 acre area was converted in 2022.
Belmont Manor – This park contains a 4.5 acre pollinator meadow established in 2021.
Rockburn Branch Park – This park contains 3.0 acre pollinator meadow established in 2021.
Worthington Landfill – This area contains a 1.0 acre pollinator meadow established in 2021.
MPEA (Middle Patuxent Environmental Area) – Clegg's Meadow is an area of about 8 acres of native warm-season grasses, first planted in 2001, and now well established. An additional 3- acre area nearby was also planted as a native warm-season grass meadow. These fields contain a variety of forbs that serve as both nectar and larval host plants for pollinators.

All meadows on Department lands are maintained by an annual winter mowing, careful spot spraying of some invasive plants and volunteers that hand pull weeds during organized events.

Seven Butterfly Walks

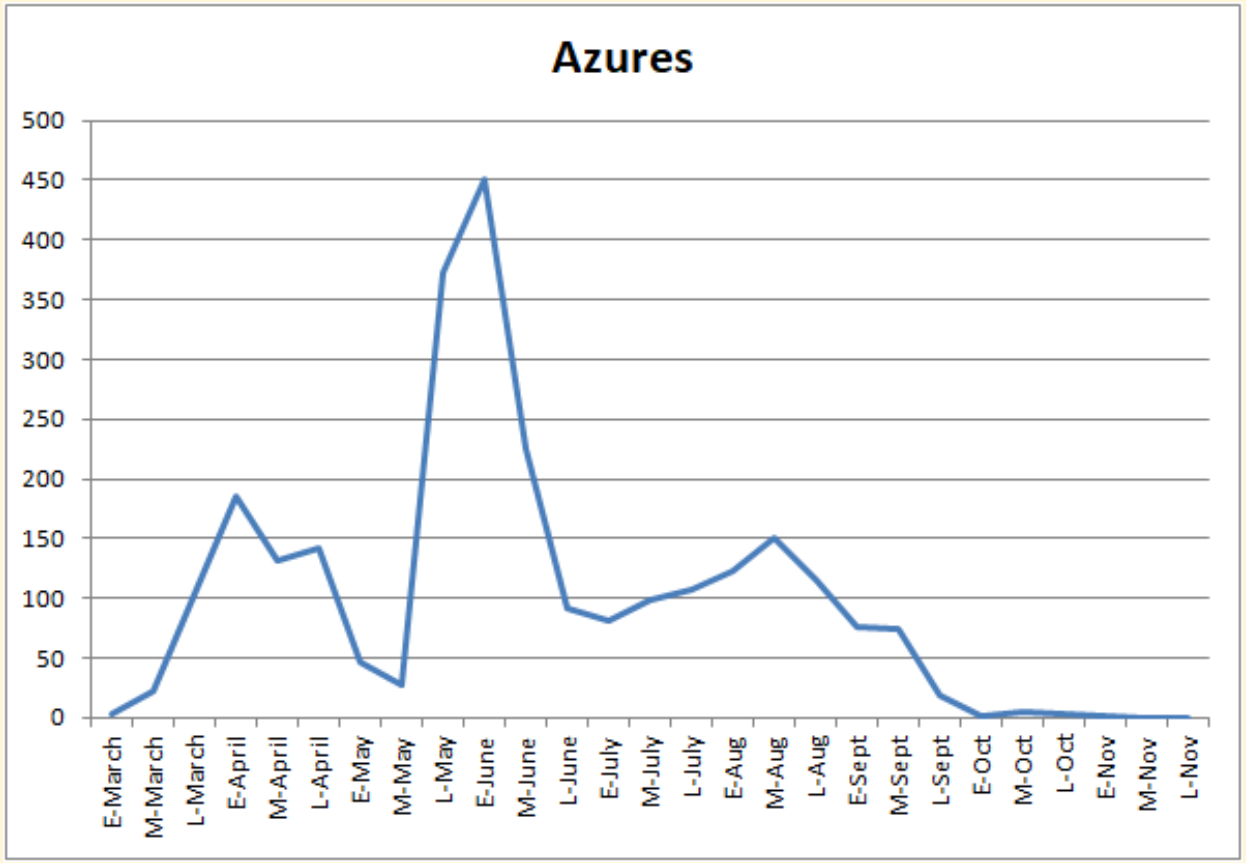
- Held seven butterfly walks between June 22nd and Sept 4th
- Six were at Mount Pleasant; the seventh was at Elkhorn Garden plots
- Averaged 20 people / walk and 23 species of butterflies / walk
- The two walks in June were during Pollinator Week
  - successfully found both Coral and Banded Hairstreaks during the two June walks
- August 20th walk had the most people (26), the most species (33), and the most leaders (5)
- Plan to have a similar number of walks this year as well

Group photo from August 20th walk

Group photo from Aug 15th walk

What Date To Use after which all Azures Seen are Summer Azure?

- **In the spring, the first brood of Summer Azure is out followed shortly by Spring Azure**
- **A sighting is only considered a Spring Azure if it is verified by an expert**
- **Most azure sightings early in the year are recorded as “Azure species”**
- **When is the date that the Spring Azure brood is done for the year and all subsequent sightings can be called Summer Azure?**
- **Summing the sightings of Spring, Summer and Azure species and plotting vs. calendar date show Mid-May.**



All Azure sightings up until and including May 14th should be entered as “Azure species” unless you can definitively ID the butterfly as a Summer Azure or get Harry Pavulaan to agree that it is a Spring Azure. All Azure sightings from May 15th on should be entered as Summer Azures.

Overwintering Strategies of Howard County Butterflies

- Used field guides, online data and survey data to research overwintering strategies.
    - best field guide for this purpose in “Butterflies of the Mid-Atlantic”
- Categories include egg, caterpillar, chrysalis, adult, “may overwinter as adult”, unknown, migrant, introduced on vegetation
- Both caterpillar and chrysalis phases were given in different references for five species, Peck’s Skipper, Clouded and Orange Sulphur, American Copper and Red-banded Hairstreak. In that case both were recorded.
- Fifty-five of the 80 species overwinter in the egg, caterpillar or chrysalis stages. Many overwinter in the leaves → ***LEAVE THE LEAVES***
    - Only three overwinter in the egg stage, Bronze Copper, Coral and Banded Hairstreaks
- Three species overwinter as adults, Mourning Cloak, Eastern Comma and Question Mark. These can be seen flying on warm winter days.
- An additional five species “may overwinter as adults”, Orange Sulphur, Sleepy Orange, American Snout, Variegated Fritillary and American Lady. The majority of individuals of these five species migrate south. Survey data played a part in the “May overwinter as adult” designation for Orange Sulphur, American Snout and Variegated Fritillary.
- Some individuals of 22 species migrate north during the year and/or south in the fall.
- One species overwintering strategy is unknown: Mulberry Wing
- One species was dual designated as Migrant and “Introduced on Vegetation”: Dainty Sulphur
- A pdf of the results is on the HCBC website

Mourning Cloak (Annette Allor)

Orange Sulphur
Amy M. Fine-Dugas & Tyler Dugas
Dec 16, 2021

Possible Sources of Error and what we try to do to limit them

- **Undercounted butterflies:**
  - **Skippers: difficulty in IDing them**
  - **Butterflies in "out of the way" habitats: lack of people surveying those areas**
  - **Early spring butterflies: few garden nectar plants**
- **Errors in identification:**
  - **check reports before we put them in the system**
  - **Encourage people to send photos if they are not sure of the ID**
  - **Early / late date questions**
- **Rare butterflies or ones that are outside of their early or late dates:**
  - **Usually require a photo to count**
- **Double counting of rare species: (Coral Hairstreaks)**
  - **We have sometimes subtracted them from the count**
- **Daily garden counts can result in double counting:**
  - **Requested garden counts every week instead of daily and to use the peak number of each species in a day**

One Location Can Make a Difference (Mount Pleasant)

- **The Zebra Swallowtail found at Mount Pleasant this year is the 68th species on the Howard County Conservancy list**
- **It has the largest list in the county by far**
- **The book, "Butterflies of the Mid-Atlantic" includes the Conservancy as one of 14 "Noted places to observe" butterflies in Maryland**
- **It is the only location in Howard County**

Zebra Swallowtail
Annette Allor

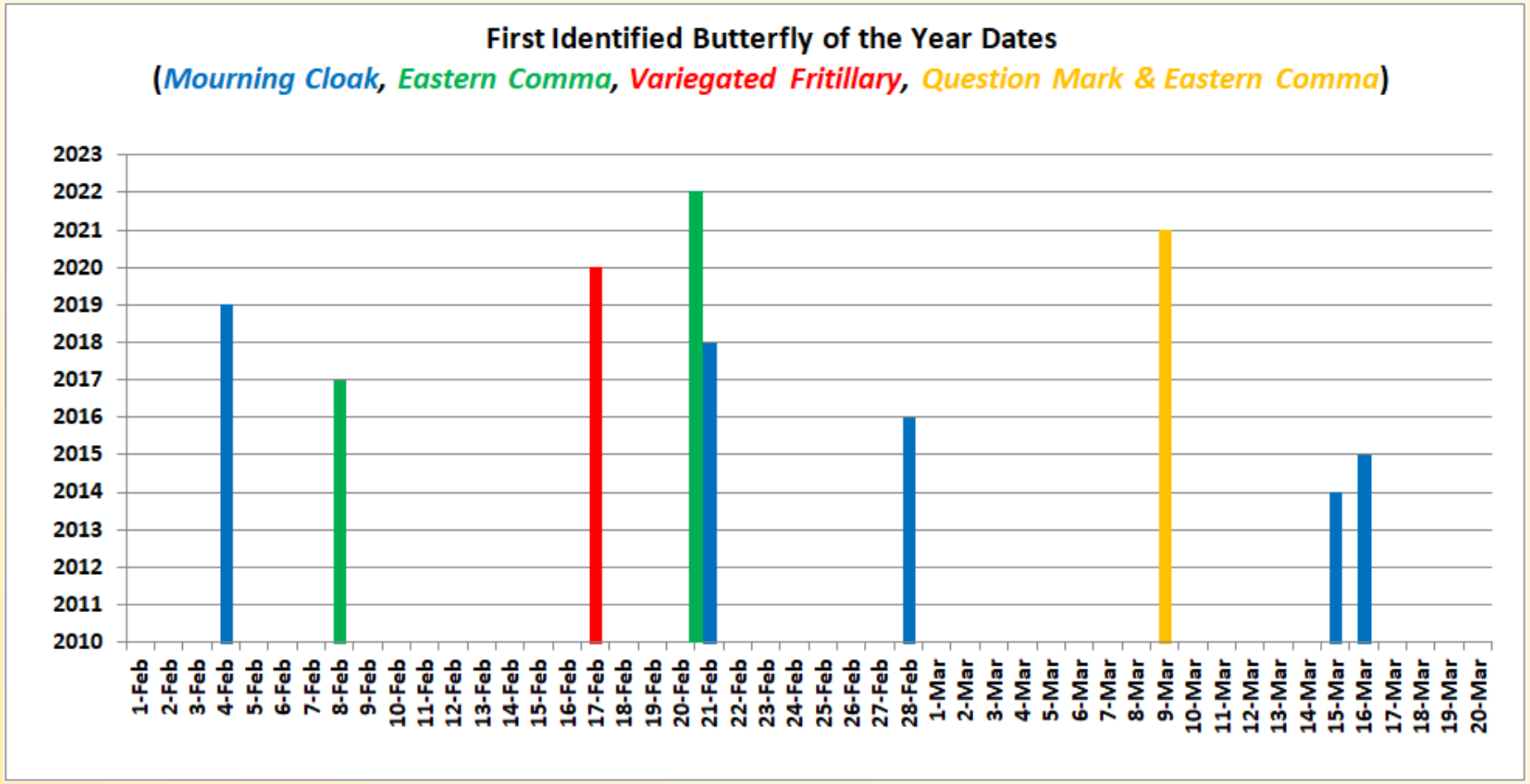
Mount Pleasant Butterfly List

Swallowtails			Brush-footed Butterflies			Spreadwing Skippers		
Pipevine Swallowtail	U	X	American Snout	R	X	Silver-spotted Skipper	C	X
Zebra Swallowtail	U	X	Variegated 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	X	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						

First Butterfly of the Year 2022

- The first identified butterfly of 2022 was a ***Eastern Comma seen by Annette Allor on Feb 21st at Western Regional Park***
- By the end of March, 62 butterflies of five species (Mourning Cloak, Eastern Comma, Question Mark, Azure species, and Cabbage White) had been reported.
- Chart shows dates and species of the first identified butterfly sighting for each of the nine years of the survey
- Earliest sighting date of an unidentified butterfly was on this date three years ago, January 12th, 2020 by Bonnie Ott

Eastern Comma
Annette Allor
Feb 23, 2022
Henryton Area of PSP



Last Butterfly of the Year 2022

- **The last butterfly of the year contest has been held the last couple of years. The rules are that**
  - **It cannot be a Cabbage White**
  - **Must submit a photo and an Incidental Butterfly report**
  - **It cannot be one of the people involved in the survey**
- **The winner this year is Bill Hill who found a Common Checkered-Skipper on Yellow Coneflower at Sun Nursery on November 12th**
  - **Bill will receive a copy of the "Butterflies of the Mid-Atlantic by Robert Blakely and Judy Gallagher**
- **The last Incidental Butterfly Report was sent in by Linda Hunt who reported one Sleepy Orange, two Eastern Tailed-blues and two Pearl Crescents at MPEA Trotter Rd on November 29th**

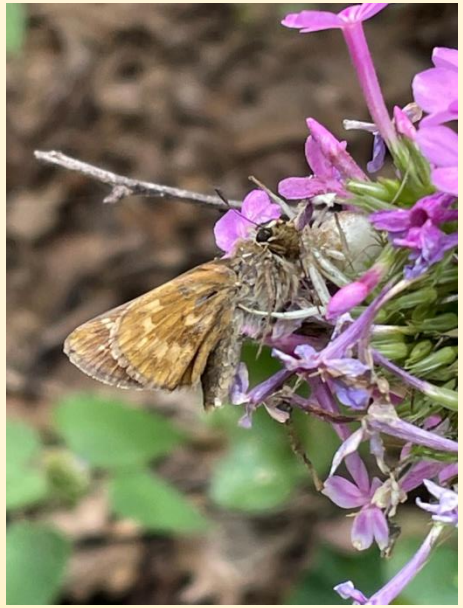
Common Checkered Skipper
Bill Hill

It must be tough to be a butterfly

Dragonhunter with Monarch
Linda Hunt

Sleepy Oranges mating
Kevin Heffernan

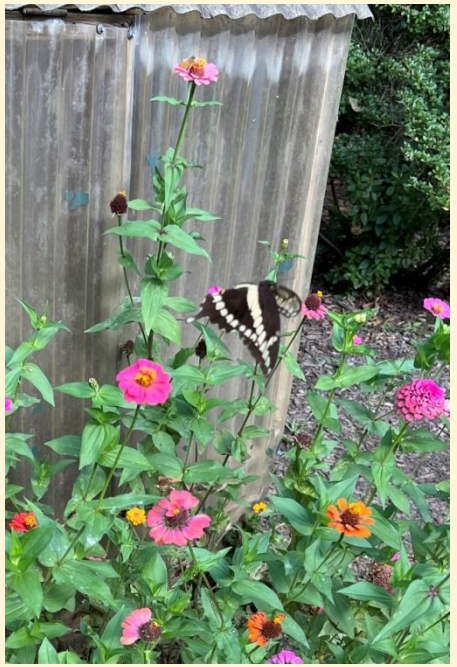
Photos from Participants



Female Sachem caught by Crab Spider
Karan Blum

Hobomok Skipper
Pam Perna

Long-tailed Skipper
Jim Wilkinson



Giant Swallowtail
Connie McRill

Tawny Emperor
Annette Allor

Coral Hairstreak
Annette Allor

Pipevine Swallowtail
Pam Perna

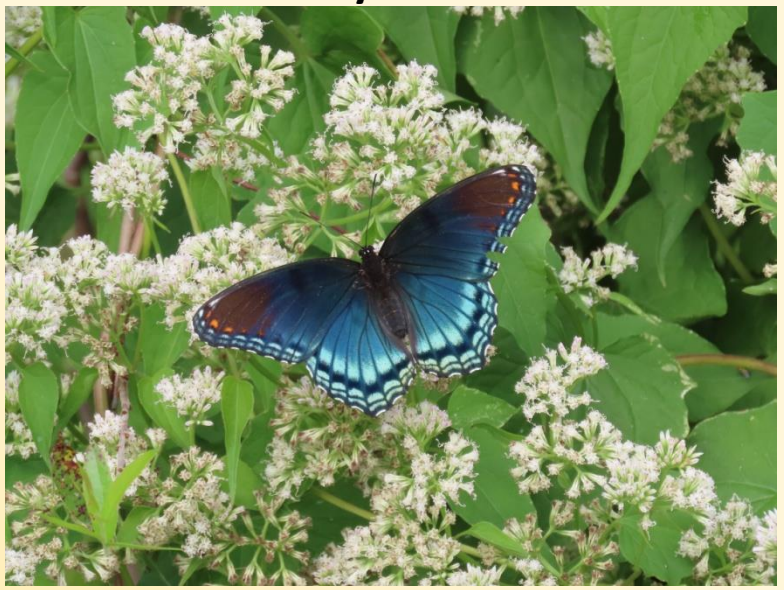
Photos from Participants

Meadow Fritillary
Bonnie Bezila

Cloudless Sulphurs
Kelsey Wellons

Gray Hairstreak
Kevin Heffernan

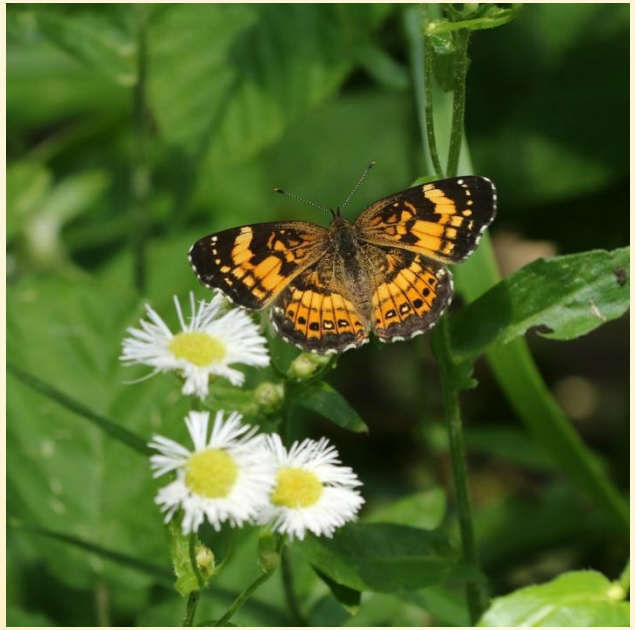
Giant Swallowtail
Linda Hunt



Red-spotted Purple
Clayton Koonce

Juniper Hairstreak
Annette Allor

Photos from Participants



Silvery Checkerspot
Kathy Litzinger

American Cooper
Pam Perna

Spicebush Swallowtail
Annette Allor

Zabulon Skipper (female)
Annette Allor

Northern Pearly Eye
Bill Hill

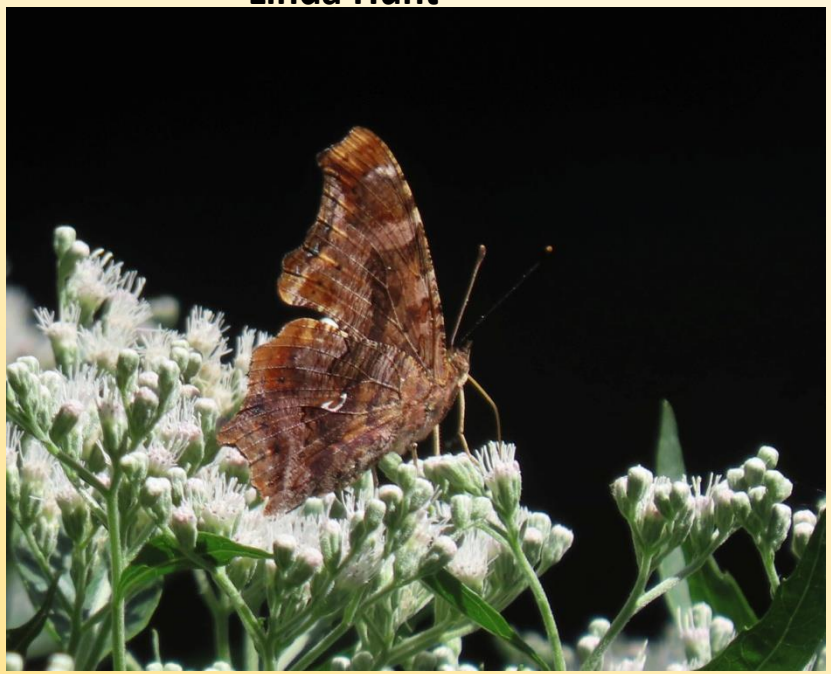
Sleepy Orange (dorsal view)
Barbara White

Photos from Participants

Broad-winged Skipper
Linda Hunt

Little Wood Satyr
Pam Perna

Pipevine Swallowtail
Kevin Heffernan

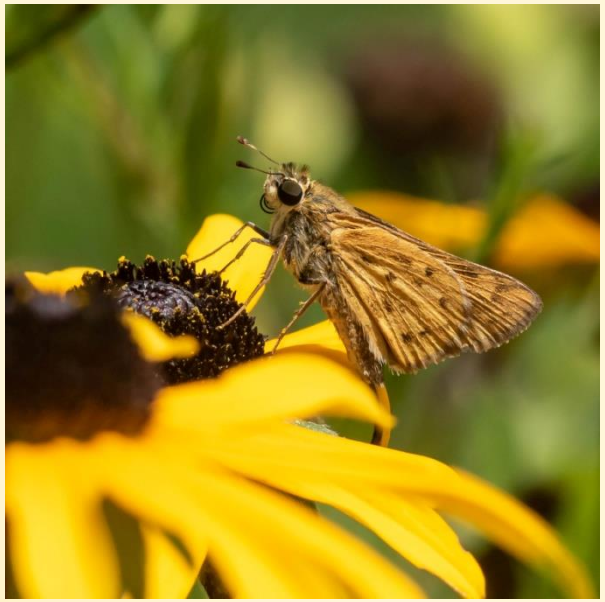


Eastern Comma
Clayton Koonce

Red-banded Hairstreak
Annette Allor

Crossline Skipper
Pam Perna

Photos from Participants



Fiery Skipper
Kevin Heffernan

Great Spangled Fritillary
Annette Allor

Swarthy Skipper
Annette Allor

Southern Broken-Dash
Linda Hunt

Question Mark
Clayton Koonce

Ocola Skipper
Annette Allor

Caterpillar / Chrysalis Photos

Question Mark Caterpillar
Annette Allor

Variegated Fritillary caterpillar
Kathy Kaberle

Common Sootywing ovipositing
Annette Allor

Silvery Checherspot (recently eclosed)
Kathy Litzinger

Tawny Emperor ovipositing
Kathy Litzinger

Eastern Tailed-blue (mating)
Clayton Koonce

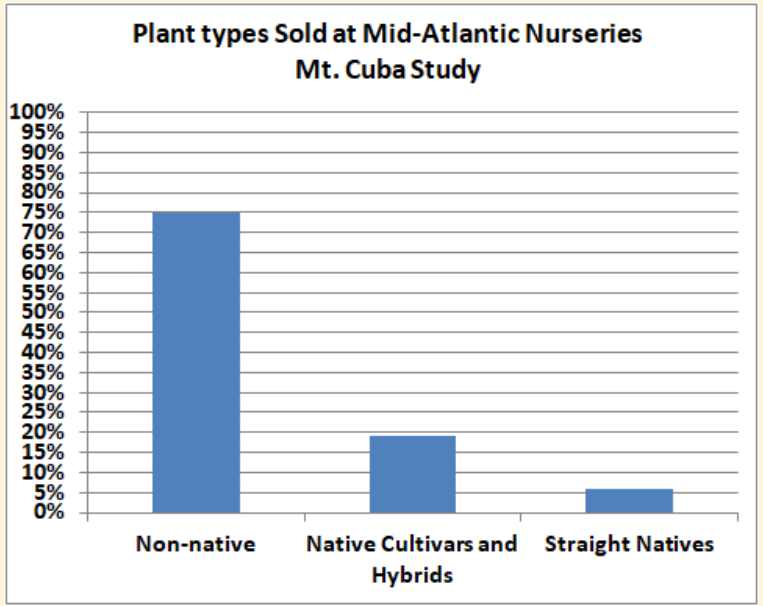
What can you do at home to help butterflies?

Plant a *native* plant pollinator garden

- 96% of our birds raise their young on insects and our insects are unable to eat non-native plants because they don't have the adaptations to eat them
- *A 2018 Smithsonian study concluded that in areas made up of <70% native plant biomass, Carolina chickadees will not produce enough young to sustain their populations. At 70 percent or higher, the birds can thrive.*
- *What percentage of plant taxa sold by local nurseries are native?*
  - *Mt. Cuba Center conducted a survey of 14 local nurseries in PA, NJ, MD, and VA.*
  - *Results: 75% non-native, 19.3% native cultivars and hybrids, 5.7% straight natives*
  - *Also: 2% are invasives and another 2% are on Invasive Watch List*
- Bee City committee and the HCBC put together some tools to help:
  - Power pollinator plant list
  - Native pollinator plant garden templates for different sun and soil conditions
  - Garden design spreadsheet

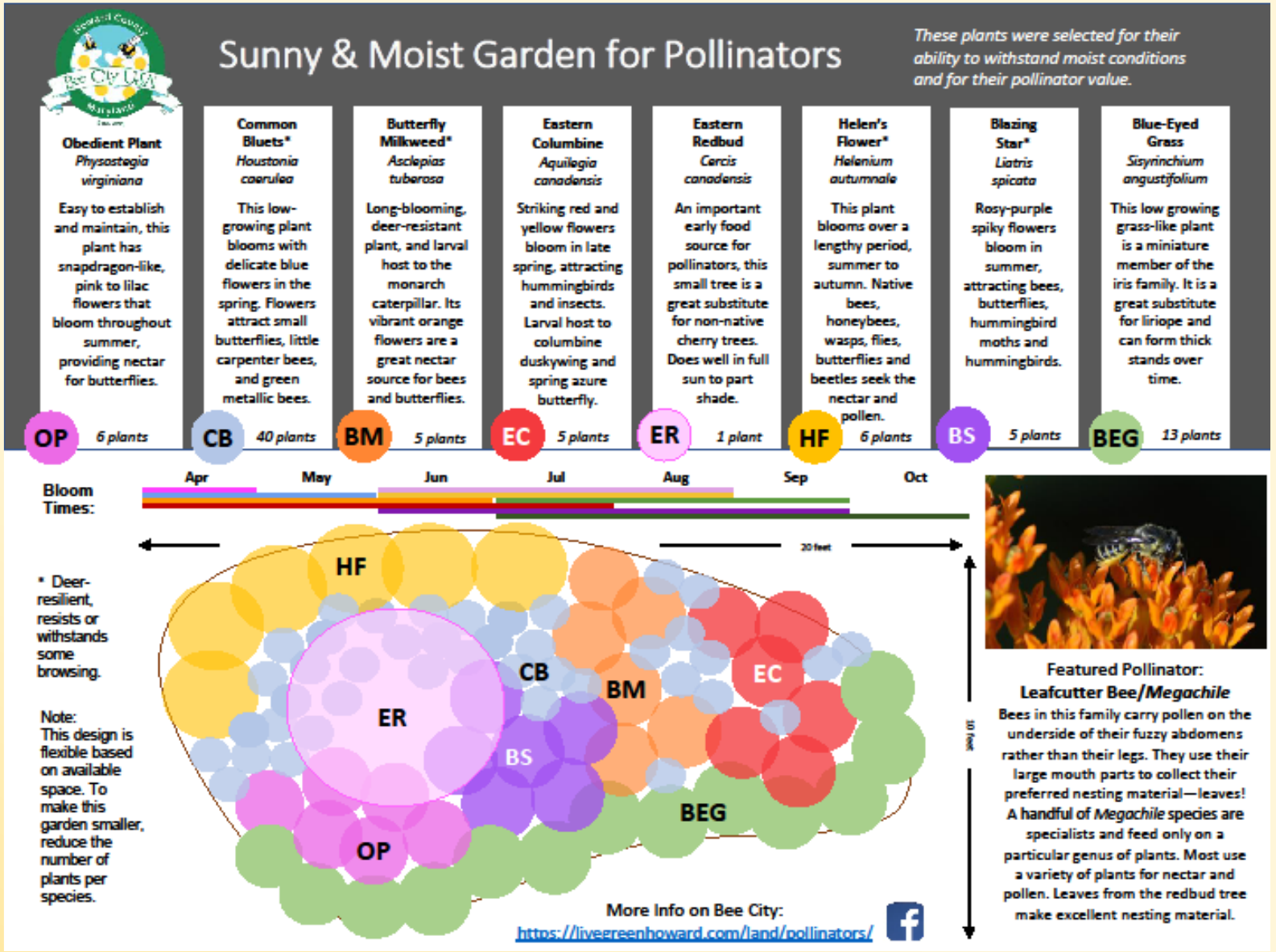
New England Aster "Purple Dome"

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



Native Pollinator Garden Design Template Example

- **Sample garden template (can be found on the HCBC website)**



What can you do at home to help butterflies?

Plant a native plant 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
  - is being periodically updated
  - can be sorted to emphasize plants / conditions that you are looking for
  - Mt. Cuba Center just released a similar spreadsheet

Herbaceous Plants

Flowers		Bloom time		Color, Height, Spread			Nectar, Host, Native, H-birds				Perennial, Biennial, Annual			Soil			Sun			Deer Damage Level					Pollinator Value					Larval host	Comment
																									USDA NRCS						
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			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 foeniculum	Anise hyssop	6	9	Lavndr to purple	2-4'	1.5-3'	N	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 it's name from the Algonquin Indian name for this plant, "chigagou";

What can you do at home to help butterflies?
Landscape for caterpillars


Sleepy Orange mating (Kevin H)

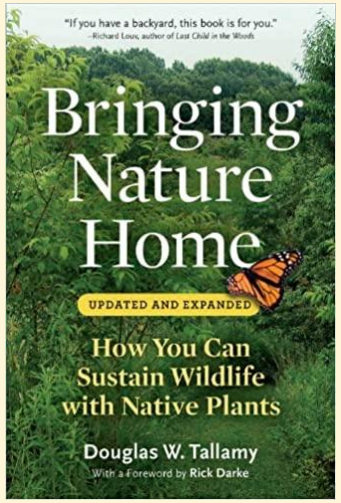
- **A single pair of breeding chickadees must find 6,000 to 9,000 caterpillars to rear one clutch of young (Doug Tallamy, University of Delaware)**
- **Consider planting the "Keystone trees, shrubs and plants" (see next slide)**
- **Consider planting the host plants of the survey butterflies:**
  - **Purpletop 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)**

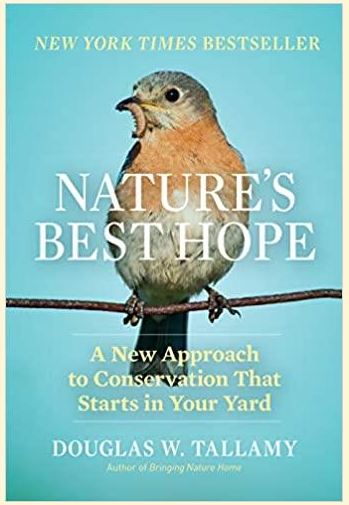

Cloudless Sulphur on Maryland Senna (Kevin H)

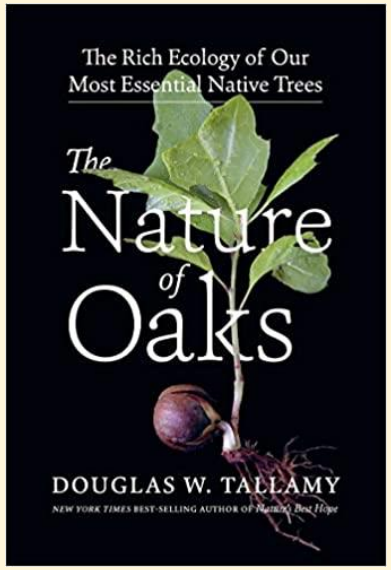
Mourning Cloak ovipositing on Hackberry tree (Kathy Litzinger)

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.**
- ***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.

Butterflies and bees have to bridge the fall to the spring successfully to thrive

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

Harvester chrysalis - Bonnie Ott

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?

- Lawns are monocultures: a biological desert
- 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
    - Lawns are the largest irrigated crop in the United States
- 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

Which landscape would you rather have?

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 that 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

- **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. Janet is Nancy Lawson's sister.**
- ***Maryland HB* 322 went into effect October 1, 2021.**
- **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."***
- ***One of the definitions of "low-impact landscaping" is "Pollinator gardens and other features designed to attract pollinator species"***

The law codifies the right to have a pollinator/habitat gardens and specifically encourages attracting wildlife and pollinators.

- **The New York Times recently ran this story under the title *"They fought the lawn and the lawn lost"*. It was also run in the Baltimore Sun and overseas in the Daily Mail. CNN interviewed Nancy and her sister. They called it *"Fighting Lawn Enforcement. Is it the end of the manicured lawn?"* Nancy has it on her website as *"Butterflies: 1 Bullies: 0"*. Finally, Nancy had an article in "Butterfly Gardener" magazine titled *"Defending Your Garden Borders – Eight tips for working with HOAs and weed inspectors"***

What can you do at home to help butterflies?

Reduce mosquito spray and insecticide usage!

Sprays are chemical insecticides called pyrethroids:

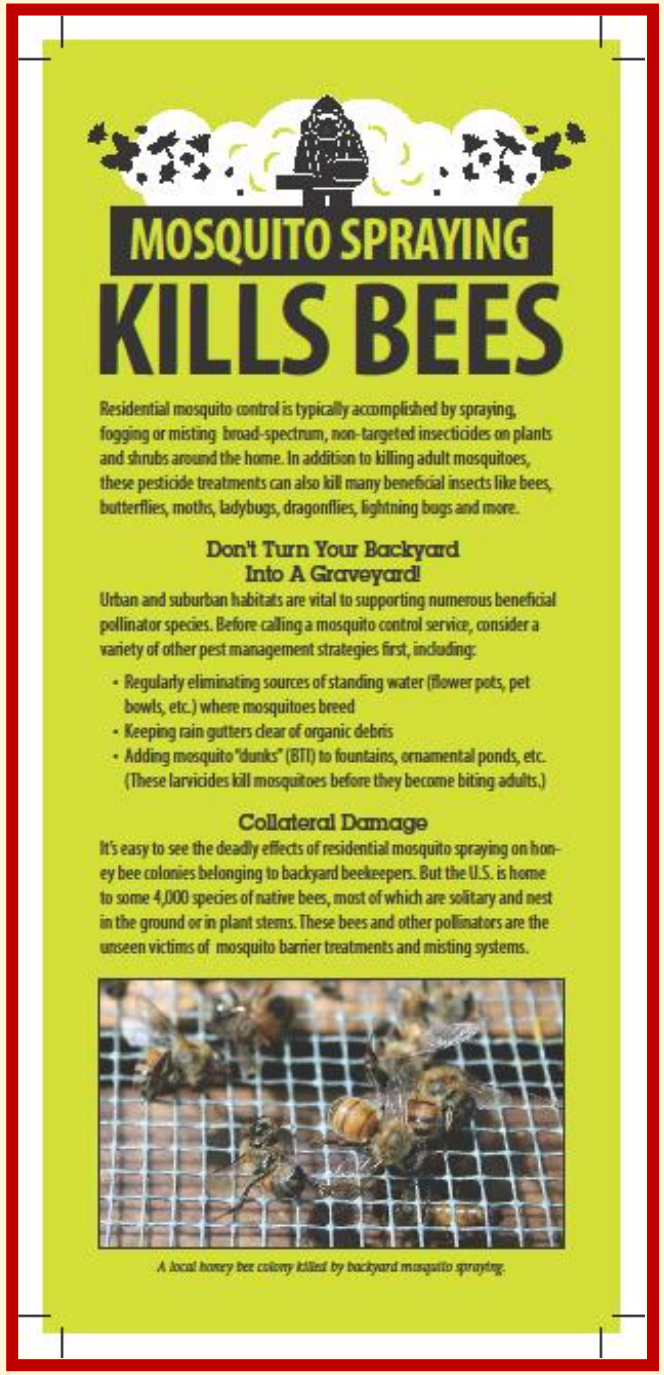
- ***Pyrethroids used to kill mosquitoes kill all insects*** (fireflies, butterflies bees, beetles, true bugs, moths, dragonflies, etc.)
- Synthetic pyrethroids are similar to naturally-occurring substances (in chrysanthemums) but are more toxic & last longer in the environment
- They typically respray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



MOSQUITO SPRAYING

KILLS BEES

Residential mosquito control is typically accomplished by spraying, fogging or misting broad-spectrum, non-targeted insecticides on plants and shrubs around the home. In addition to killing adult mosquitoes, these pesticide treatments can also kill many beneficial insects like bees, butterflies, moths, ladybugs, dragonflies, lightning bugs and more.

Don't Turn Your Backyard Into A Graveyard!

Urban and suburban habitats are vital to supporting numerous beneficial pollinator species. Before calling a mosquito control service, consider a variety of other pest management strategies first, including:

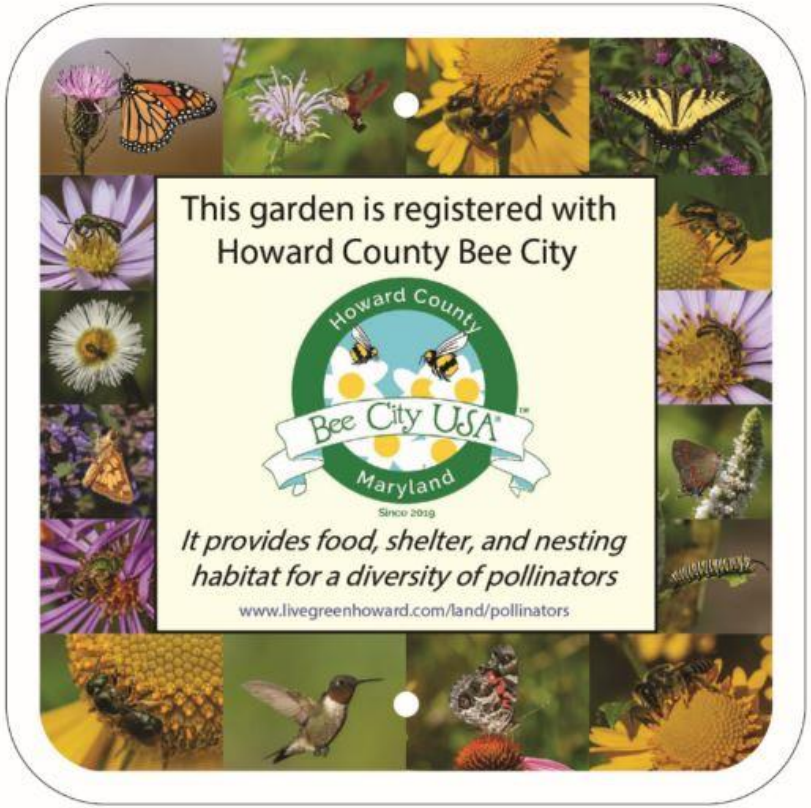
- Regularly eliminating sources of standing water (flower pots, pet bowls, etc.) where mosquitoes breed
- Keeping rain gutters clear of organic debris
- Adding mosquito "dunks" (BTI) to fountains, ornamental ponds, etc. (These larvicides kill mosquitoes before they become biting adults.)

Collateral Damage

It's easy to see the deadly effects of residential mosquito spraying on honey bee colonies belonging to backyard beekeepers. But the U.S. is home to some 4,000 species of native bees, most of which are solitary and nest in the ground or in plant stems. These bees and other pollinators are the unseen victims of mosquito barrier treatments and misting systems.

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***

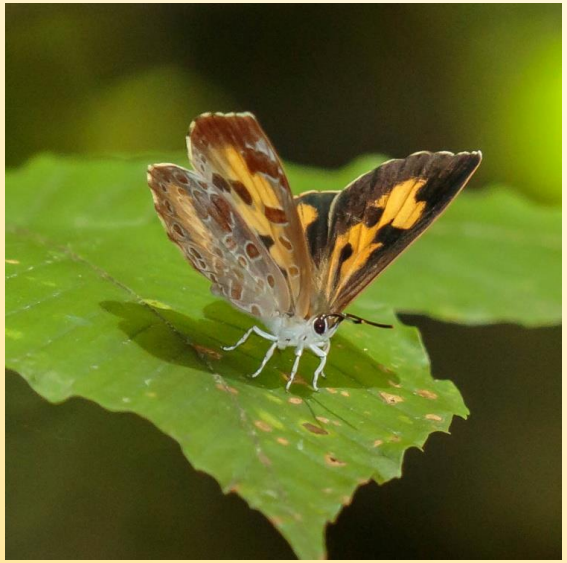


Butterfly of the Year

Harvester

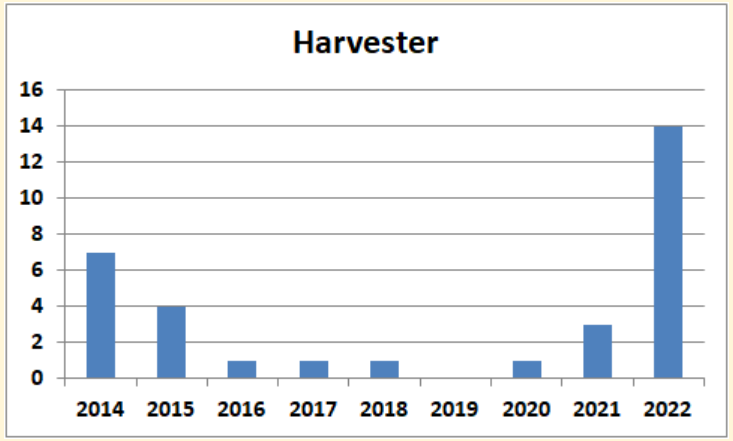
Sightings in 2014 were the first adult Harvesters seen since 1996. Have been seen in 8 of 9 years in the survey. The 14 seen in 2022 exceeded the number of sightings in the previous seven years. The Harvester chrysalis found by Bonnie Ott is the first ever found in the county.

Harvester
Annette Allor



Harvester
Kevin Heffernan

Harvester ovipositing



Harvester caterpillars – Bonnie Ott

Harvester chrysalis - Bonnie Ott

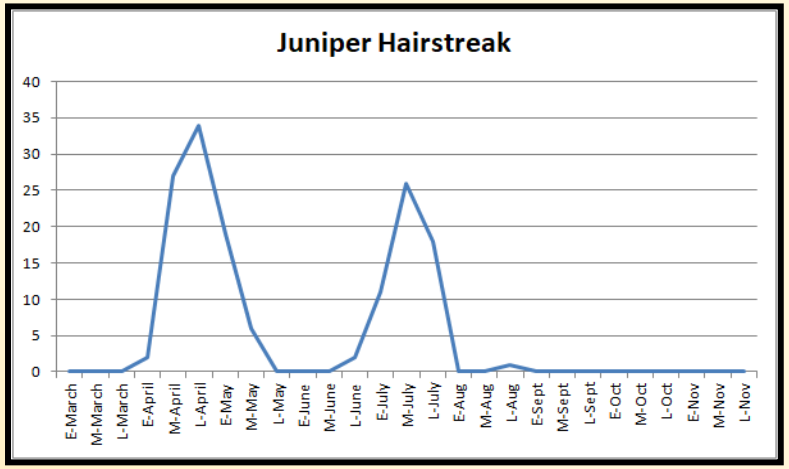
Educational Materials / Activities

- Dick Smith's "Butterflies of Howard County"
- Butterfly Identification Cheat Sheet
- Butterfly Flight Times graphs
- Butterfly Early and Late dates
- Butterfly Overwintering Strategies
- Annual "Butterfly Year" Presentations
- Pollinator garden design templates
- Pollinator garden design spreadsheet
- Butterfly photo gallery
- Butterfly walks
- Annual reports
- Last butterfly of the year contest
- Butterfly year status emails
- Butterfly talks
- Butterfly ID emails
- Recognize the first identified butterfly of the year

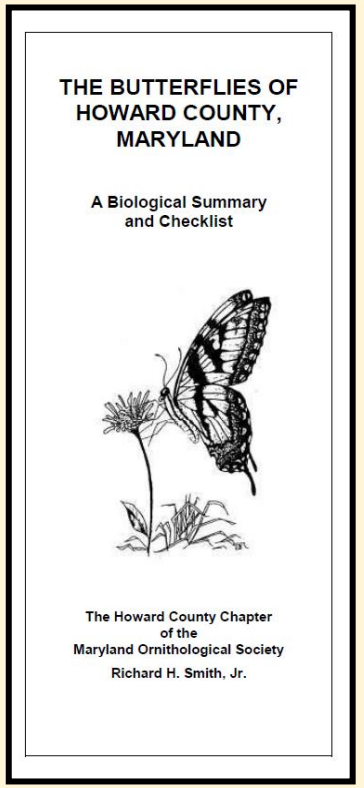
* Items in blue text are on the Howard County Bird Club website

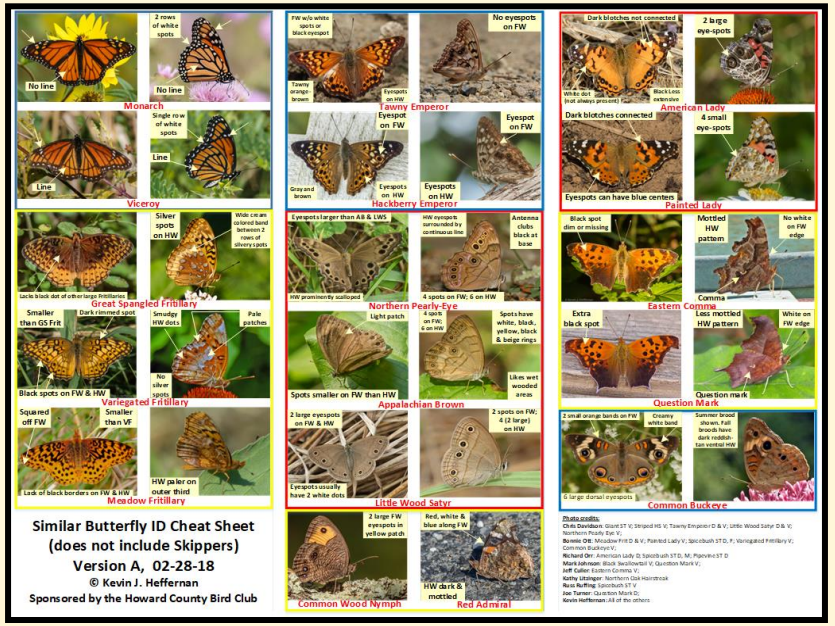
** Many of these are pdfs that can be downloaded to your phone

	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





Howard County Butterfly Survey Goals / Actions Moving Forward

- **Continue surveying to build on the long term trends**
- **Find new locations for the rarer species**
- **Look for additional areas of specialized habitat**
- **Try to locate additional new species or species with low detectibility**
- **Encourage new participants to join the survey**
- **Continue to have butterfly walks, talks, classes, etc.**
- **Continue to encourage people to send in photos for ID purposes (or because they are cool)**
- **Develop additional educational materials for participants (host plant list, update of "Butterflies of Howard County", Trees and Shrubs for Bees list, etc.)**
- **Put together a rare butterfly alert or listserve**
- **Encourage the planting of pollinator gardens that include host plants (e.g. Pipevine)**
- **Work with different agencies, county government, etc. about mowing schedules, the use of pesticide and herbicide, and protection of key habitat areas**
- **Educate the next generation of butterfly leaders in the county (continuing Dick's tradition)**

Thank you, Volunteers!

Additional Interesting Results From the 2022 Butterfly Survey

- First time that Northern Cloudywing numbers exceeded Southern Cloudywing numbers
- Only three species that had the highest or second highest count were southern migrants
- The following species have had two good years in a row: Little Glassywing, Hobomok Skipper, Dun Skipper, Ocola Skipper, Pipevine Swallowtail, Black Swallowtail, White M Hairstreak, Eastern Comma, Mourning Cloak, and Viceroy

Mosquito Spraying Info

- Peer reviewed study showed that only 1 part in a million of pesticide reached the target
- Mosquitos typically fly 1 to 3 miles so they can quickly repopulate your yard
- Mosquitos are more active at dawn or dusk but mosquito spray companies often come during the day when most pollinators are active.
- A commercial mosquito treatment will be more likely to kill butterflies, bees and ladybugs in your yard at the time of application than the mosquitoes you're trying to get rid of.
- If the treatments target standing water, beneficial insects that eat mosquitos, like dragonfly larvae, will also be killed.
- If the spray is focused on wet areas, such as piles of wet leaves, chances are they're killing far more fireflies than mosquitos.
- Sadly, birds will often pick up insects killed by insecticides, and eat them or feed them to their young.