



Howard County Butterfly Conservation

2019 Howard County Butterfly Survey Update: Themes and Challenges

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

Presentation Outline

1. Butterfly Conservation: The Challenge
2. Howard County Butterflies :
2019 Survey Themes
3. Meeting the Challenge: Personal
Commitment & Action

Handouts: Yearly Summaries 2014-2019
Selected Presentation Slides
Sample Pollinator Garden Handout (Linda Hunt & Kevin Heffernan)
The Butterflies of Howard County, Maryland (Dick Smith)
Bees of Howard County (Richard Orr)



Eastern Tiger Swallowtail
Kathy Litzinger 2019

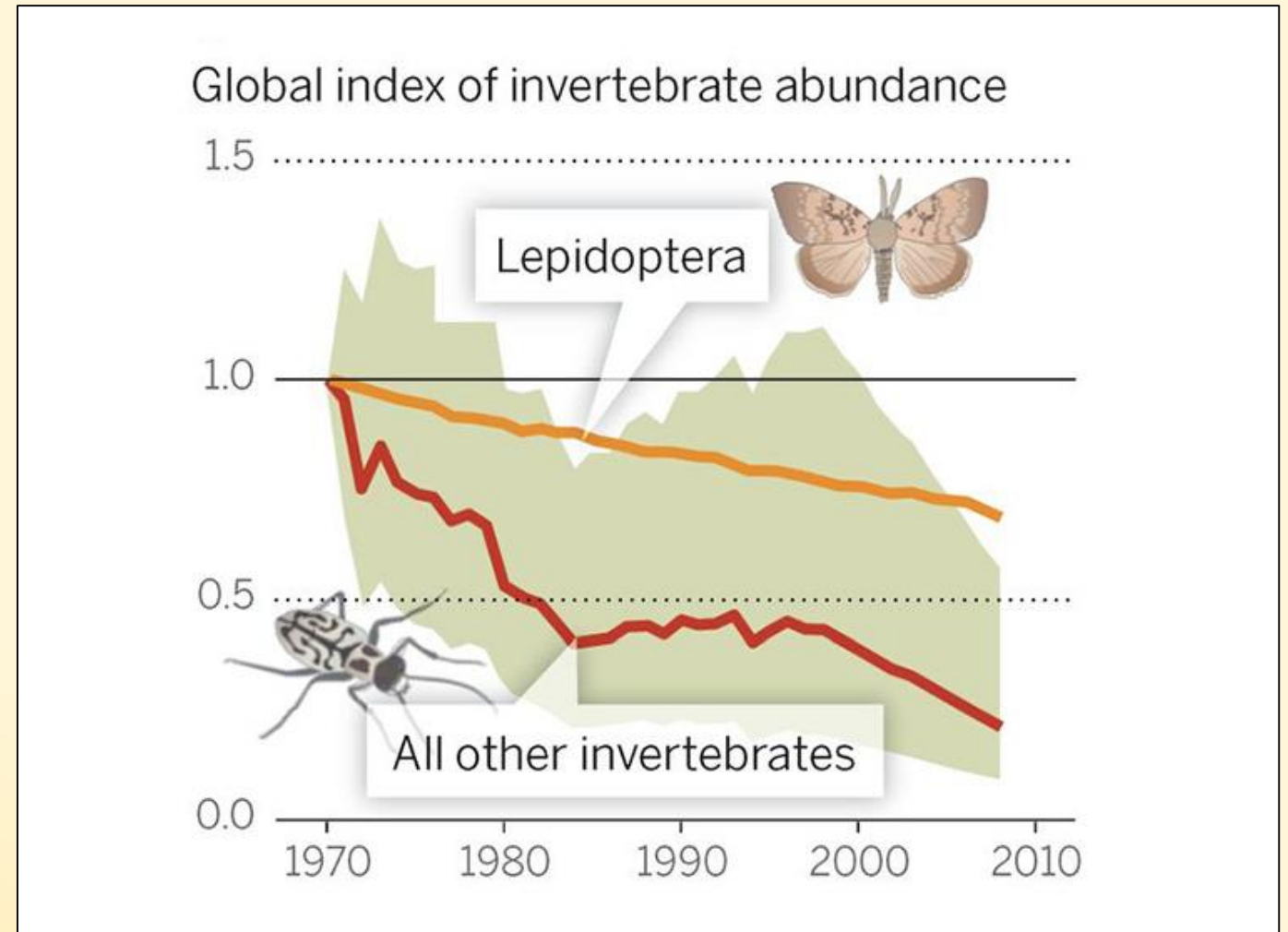
“We live amid a global wave of anthropogenically driven biodiversity loss: species and population extirpations and, critically, declines in local species abundance.”*

Terrestrial vertebrates:

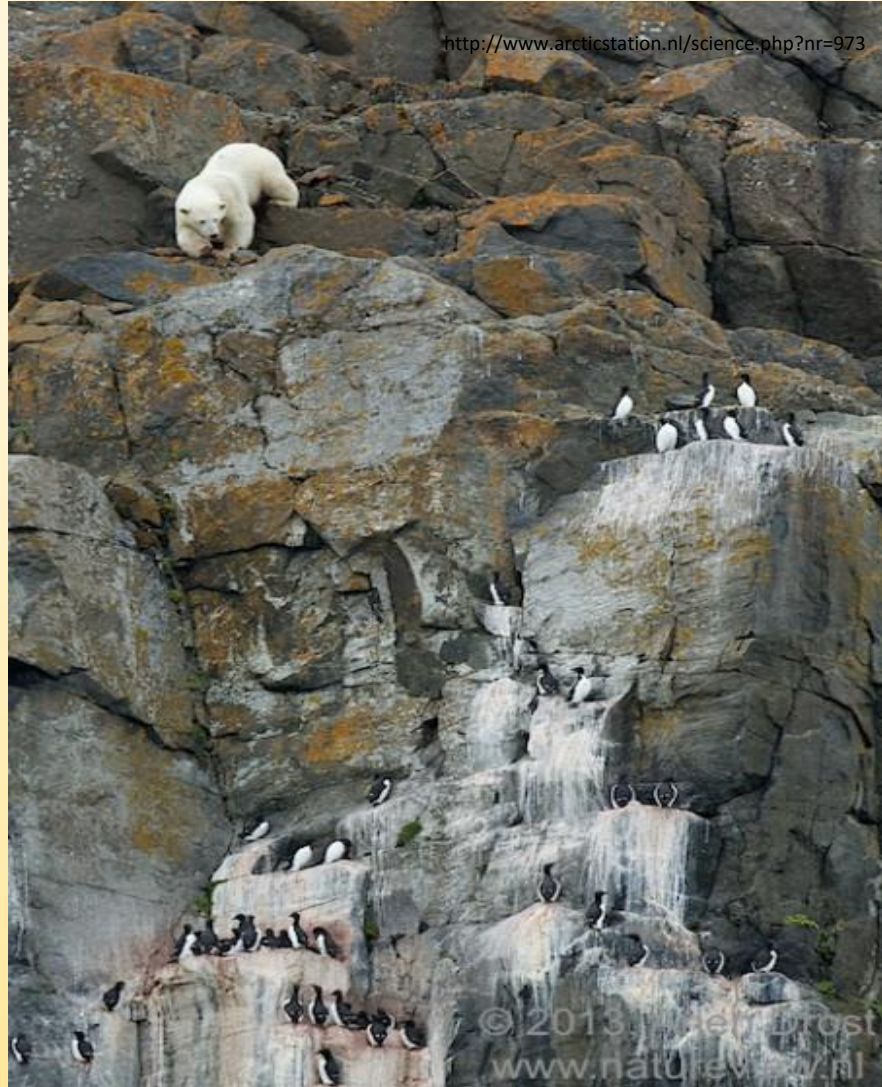
- 322 species have become extinct since 1500
- populations of the remaining species show 25% average decline in abundance.

Invertebrates:

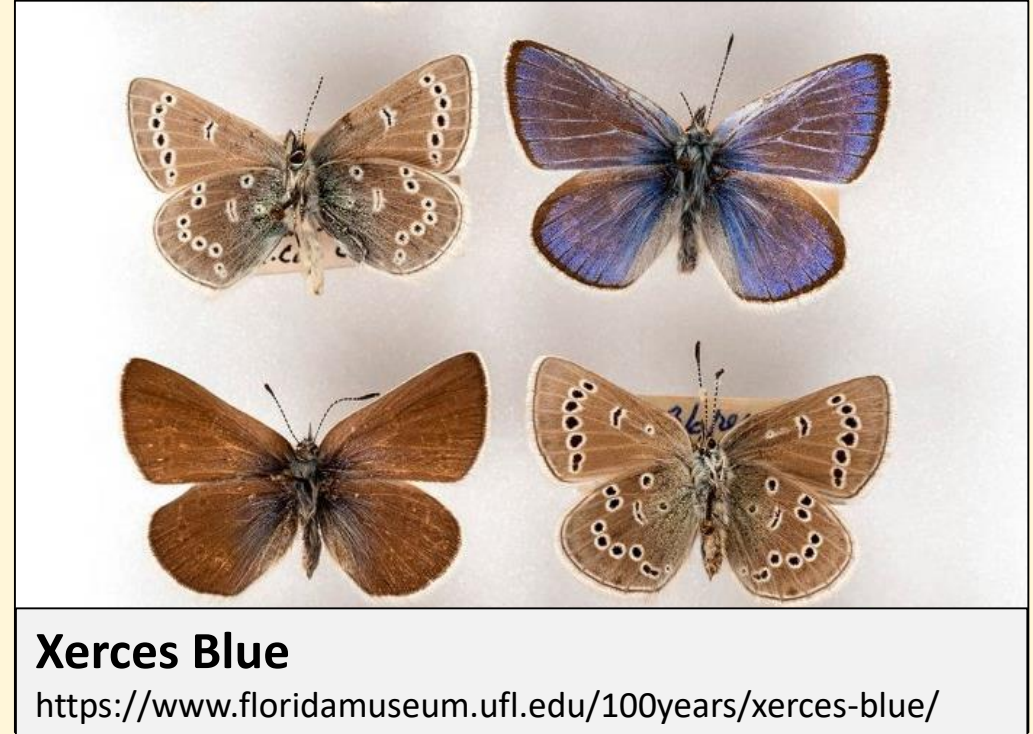
- 67% of monitored populations show 45% mean abundance decline.



Threatened



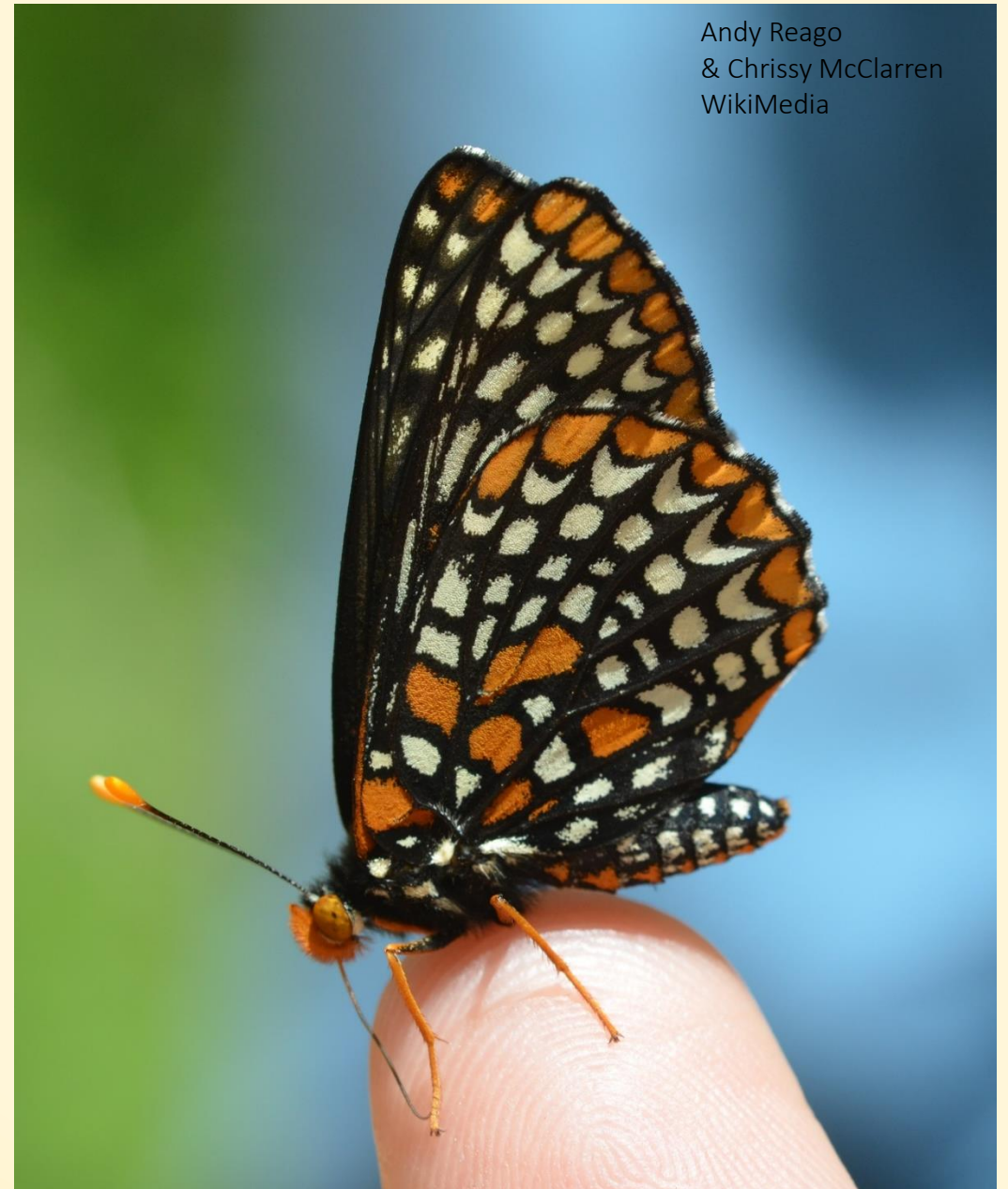
Extinct



US Fish & Wildlife Service:
1,471 Endangered & Threatened Animals Listed
78 Endangered Insects; 13 Threatened
31 Endangered Butterflies; 4 Threatened
42 MD Rare, Threatened & Endangered Butterflies

Factors Contributing to the Decline*

- Habitat destruction
- Deforestation
- Fragmentation
- Urbanization
- Agricultural conversion (including pesticide use)



Research is Sparse*

- In-depth monitoring only exists in select regions or for specific species, such as pollinators (honey bees).
- Global comprehensive data for long-term comparisons does not exist.
- Scientists are urging increased monitoring efforts.
- *Citizen science projects are becoming important contributors to recent monitoring efforts.*



Howard County Butterfly Survey Contributors 2014-2019

Annette Allor, Rene & Paul Bade, Kathy Barylski, Gill Bentley, Berglund, Jonathan Blithe, Karen Blum, Borchelt, Bowman, Alicia Buxton, Emily Calkins, Mary Lou Clark, David Cummings, B. Denny, Wes Earp, Ward Ebert, Kim Egan, Robyn Evans, Tom Field, Sherry Fisher, John Fisher, Timothy Foard, Mary Fox, Pam Franks, Jeff Friedhoffer, Ralph Geuder, Linda Giampalmo, David Gillum, Ed Gould, Patricia Greenwald, Robert Grossman, Carrie Harlow, Meg and John Harris, John Hayes, Karen and Kevin Heffernan, Robin Hessey, Pam Henry, Bill and Gayle Hill, Emy Holdridge, Linda Hunt, Kathy Kaberle, Mike Kerwin, Suzanne Klick, Clayton Koonce, Cathy Latham, Jenny Krantz, Asuncion Lavrin, Nancy Lawson, Allen Lewis, Jill Levin, Kathie Lillie, Kathy Litzinger, Emily Loghmani, Anne Looker, Mary Love, Felicia Lovelett, Brigitte Lund, Janet Lydon, Nancy Magnusson, Joe Mankowski, Mary Maxey, Grazina and Mike McClure, Alison McDaniel, John McKittrick, Woody Merkle, Amanda Mills, Sue Muller, Diane Nagengast, Michelle Okonski, Michael Osborne, Richard Orr, Bonnie Ott, Howard Patterson, Carolyn Parsa, Siobhan Percey, Gregg Petersen, Howard Peterson, Norma Petersen, Ann Phillips, Suzanne Probst, Rondie Reeser, Tim Reichard, Linda Roberts, Sarah Romero, Russ Ruffing, David Sandler, Eugene Scarpulla, Kurt Schwarz, Jay Sheppard, Gloria Smith, Richard Smith, Sara Smith, Sharon Smith, Jo and Bob Solem, Carol Spangler, Jesse Standbridge, Elizabeth Starr, Chuck Stirrat, Sikorski, Eva Sunell, Lou Taylor, Tim Thompson, Robin Todd, Kate Tufts, Tony VanSchoor, Mark Wallace, Kelsey Wellons, Barbara White, Robin White, Michele Wright, Jim Wilkinson, Sylvester Williams, Katherine Wilson, Carol Zancan, Dave Ziolkowski

Pollinator Studies Dominate Most Recent Research

Most “hairy”

Least “hairy”



4,000 ± Bee species
in North America



11,000 ± Moth species
in North America



700 ± Butterfly species
in North America



23 ± Hummingbird species
in North America

Bees are the major pollinators.

But Butterflies are the most visible.

Butterflies are **visible indicators** of pollinator habitat viability.
Preserving, enhancing and creating habitat and 'hot spots'
for butterflies and bees will benefit all pollinators and insects.



2019 Howard County Butterfly Survey

- What's Stayed the Same
- 2019 Highlights
- 2019 Lows



Did the Number of Observers and Minutes Drop Off This Year After the 5-Year Survey was Complete?

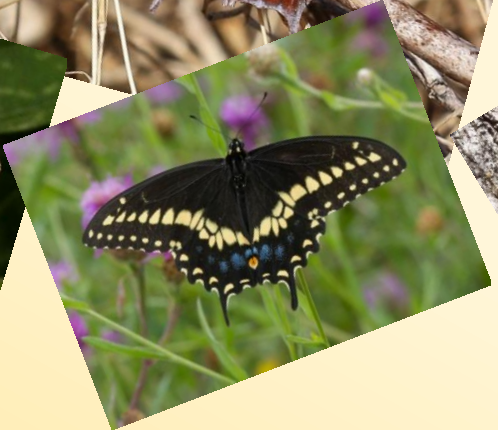
	2014	2015	2016	2017	2018	2019	Total	2019 Rank
Observers	22	48	44	48	59	62	116	1
Surveys	372	696	715	870	958	748	4359	3
Duration(min.)	19970	19437	35924	50196	55787	49242	230556	3
Species	68	69	74	70	71	72	80	2
Butterflies	10360	17570	21622	25053	25245	26258	126108	1

2019 Butterfly Year Summary

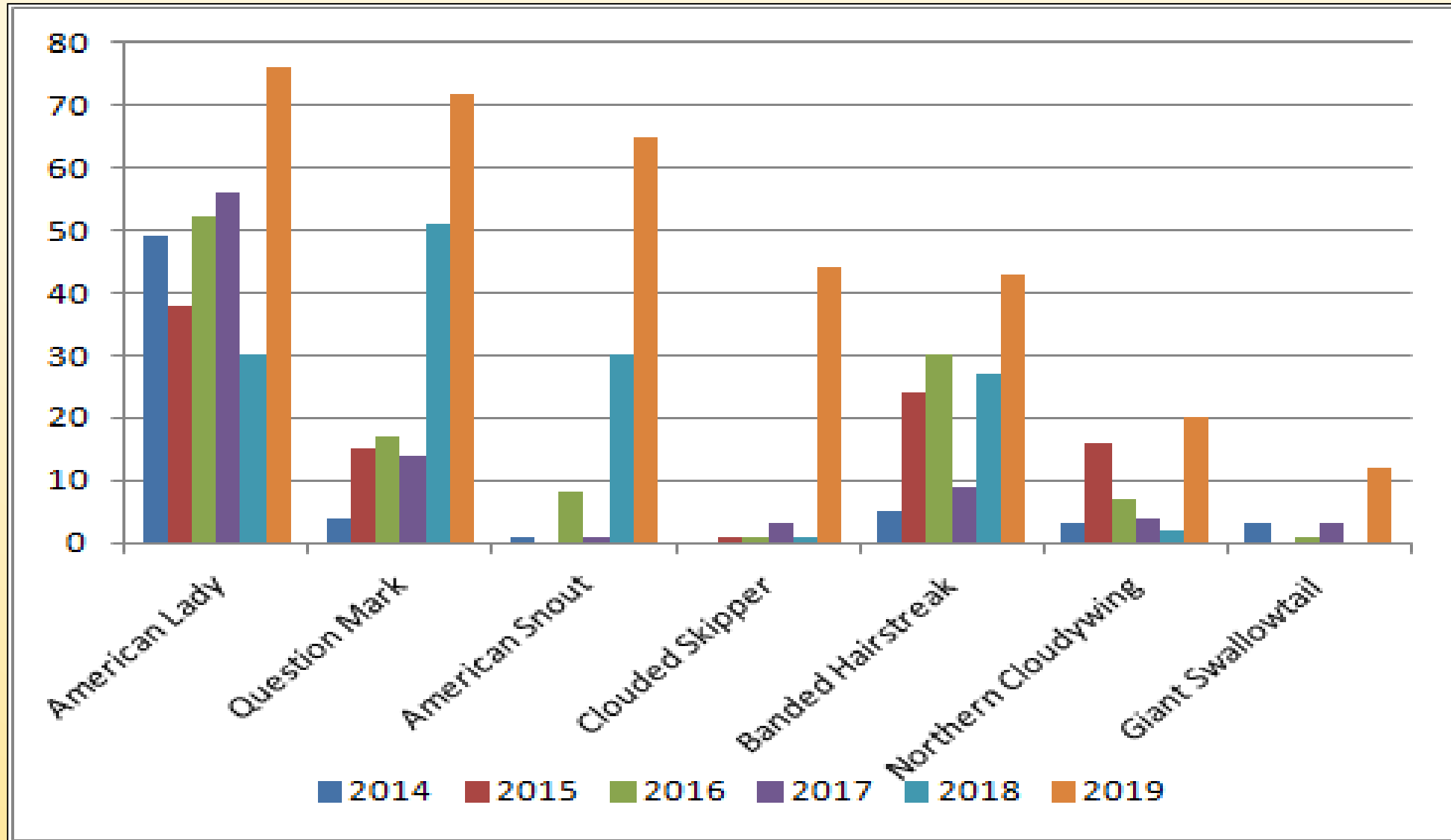
- 21 species had 6-year high numbers (8 > doubled)
- 1 new species added
- 2 species had eruption years

- 9 species had 6-year low counts
- 2 species not recorded for the first time in 6 years
- 18 species (25% of total) recorded < 10 individuals

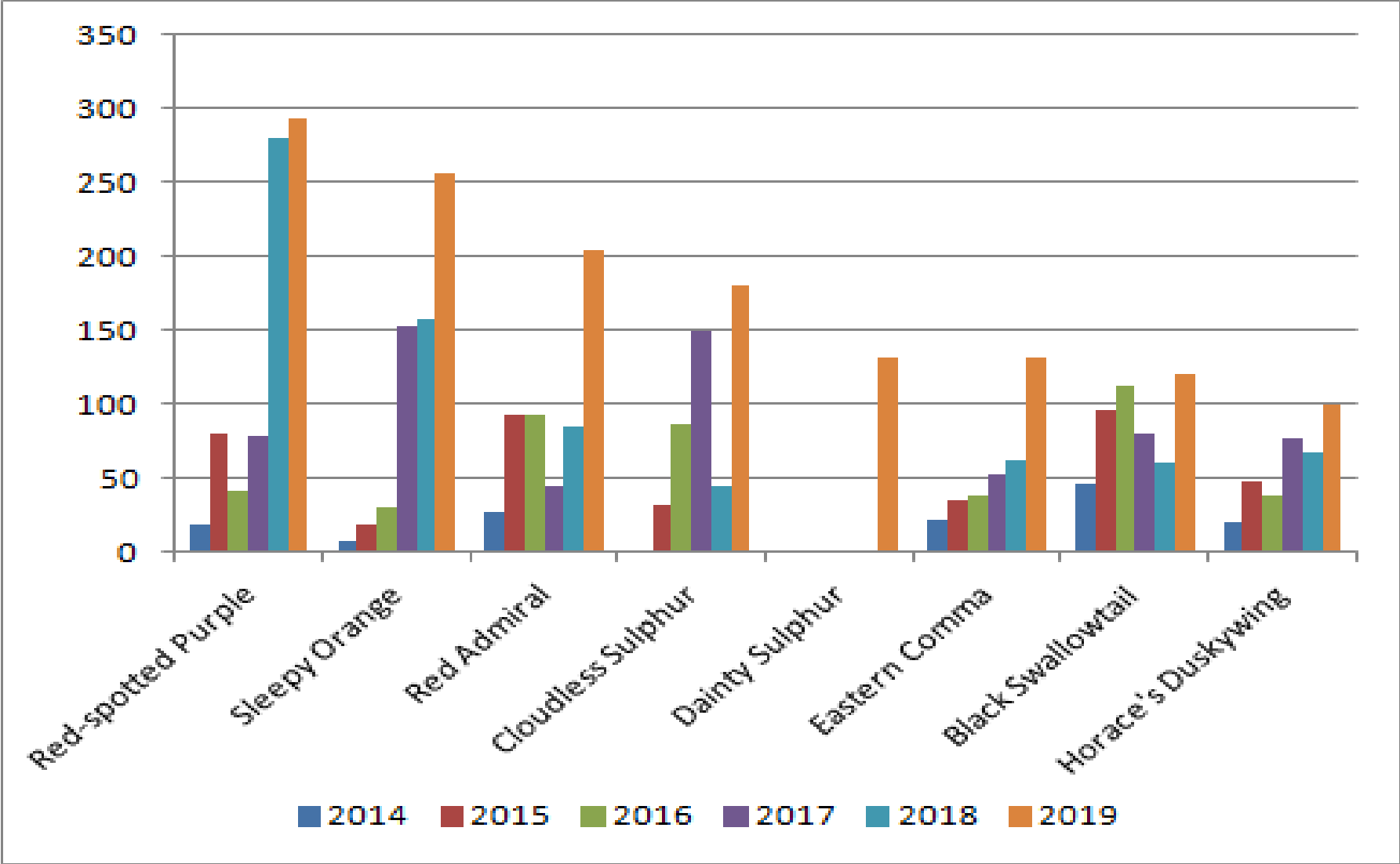
Species that did well in 2019



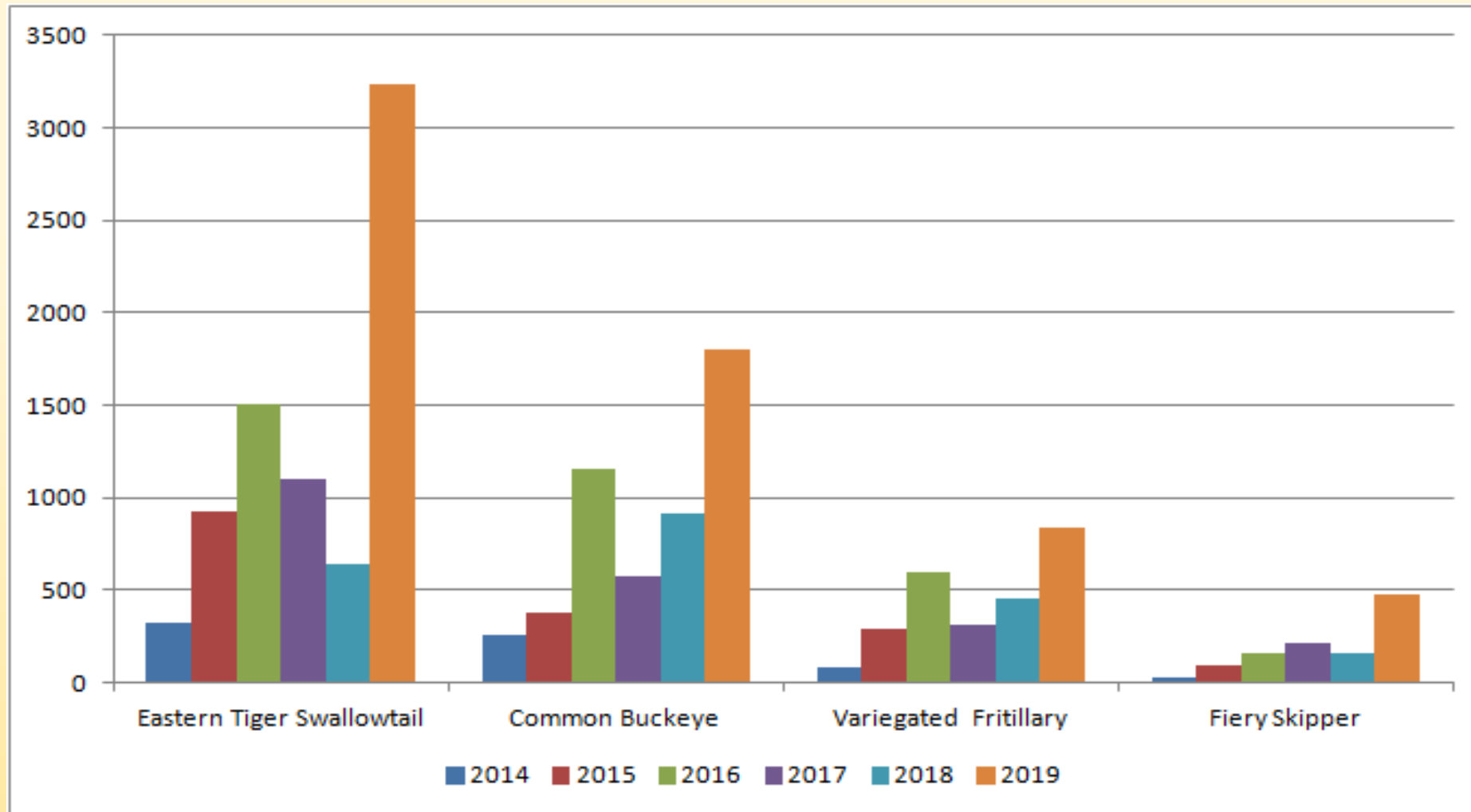
6-year counts for selected species



6-year high counts for selected species



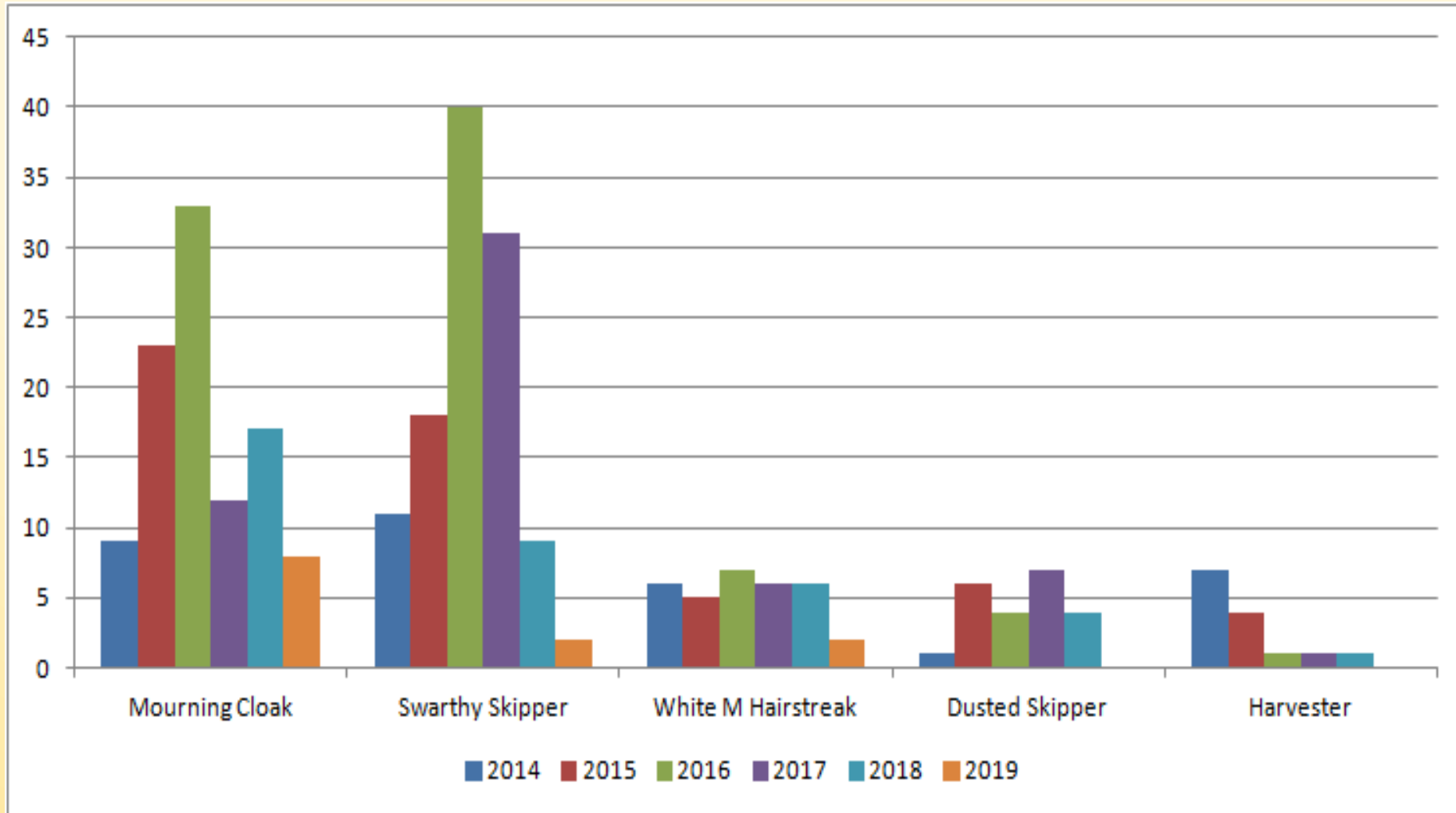
6-year high counts for selected species



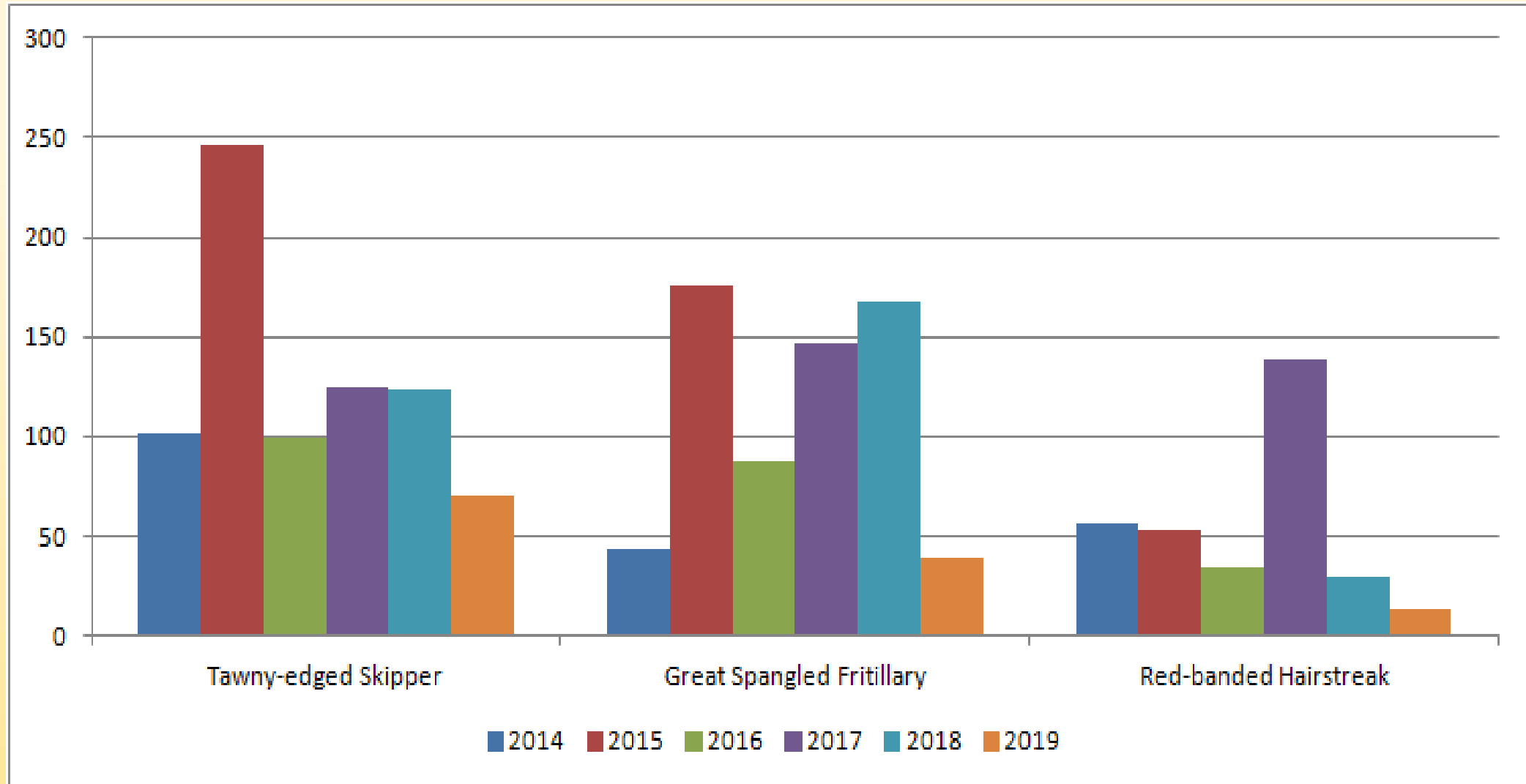
Species that did not do well in 2019



6-year low counts for selected species



6-year low counts for selected species



Species with less than 10 individuals seen in 2019

Dusted Skipper	1	6	4	7	4	0
Harvester	7	4	1	1	1	0
Brazilian Skipper		0			4	1
Little Yellow	0	1	6	0	0	1
Long-tailed Skipper	0	0	4	2	4	2
Swarthy Skipper	11	18	40	31	9	2
White M Hairstreak	6	5	7	6	6	2
Common Sootywing	9	4	1	3	2	3
Northern Broken-Dash	5	1	4	2	5	3
Coral Hairstreak	1	5	3	14	2	4
Eastern Pine Elfin	1	3	2	5	0	4
Common Wood-Nymph	9	11	3	3	9	4
Silvery Checkerspot	13	1	4	0	3	5
Appalachian Brown	22	16	63	6	2	5
Crossline Skipper	23	15	4	7	7	7
Hobomok Skipper	3	4	9	4	16	7
Mourning Cloak	9	23	33	12	17	8
Hackberry Emperor	1	4	2	15	10	8

New butterfly survey species in 2019

Dainty Sulphur

- Last seen in Howard County in 2013
- 9/16/2019 Kathy Litzinger finds first 20+ on Baltimore County side of PVSP Grist Mill Trail
- Annette Allor finds 132 on Howard County side
- Caterpillars (eggs?) may have hitch-hiked north with hay in recent landscaping
- No other sightings recorded outside the area
- Will check to see if they overwintered



New butterfly survey species in 2019



Brazilian Skipper

- Jim Wilkinson had found four Brazilian Skipper caterpillars on Canna Lily last year on 10/9/2018
- Fittingly, Jim also found an adult almost a year later on 10/8/2019
- First time an adult Brazilian Skipper has been recorded in Howard Co

Interesting Stories from 2019

Giant Swallowtail

- 7 individuals total during the survey
- 3 in previous peak year
- 12 recorded in 2019 in 8 different gardens
McKitterick (4); McClures (3), Hunt (1)

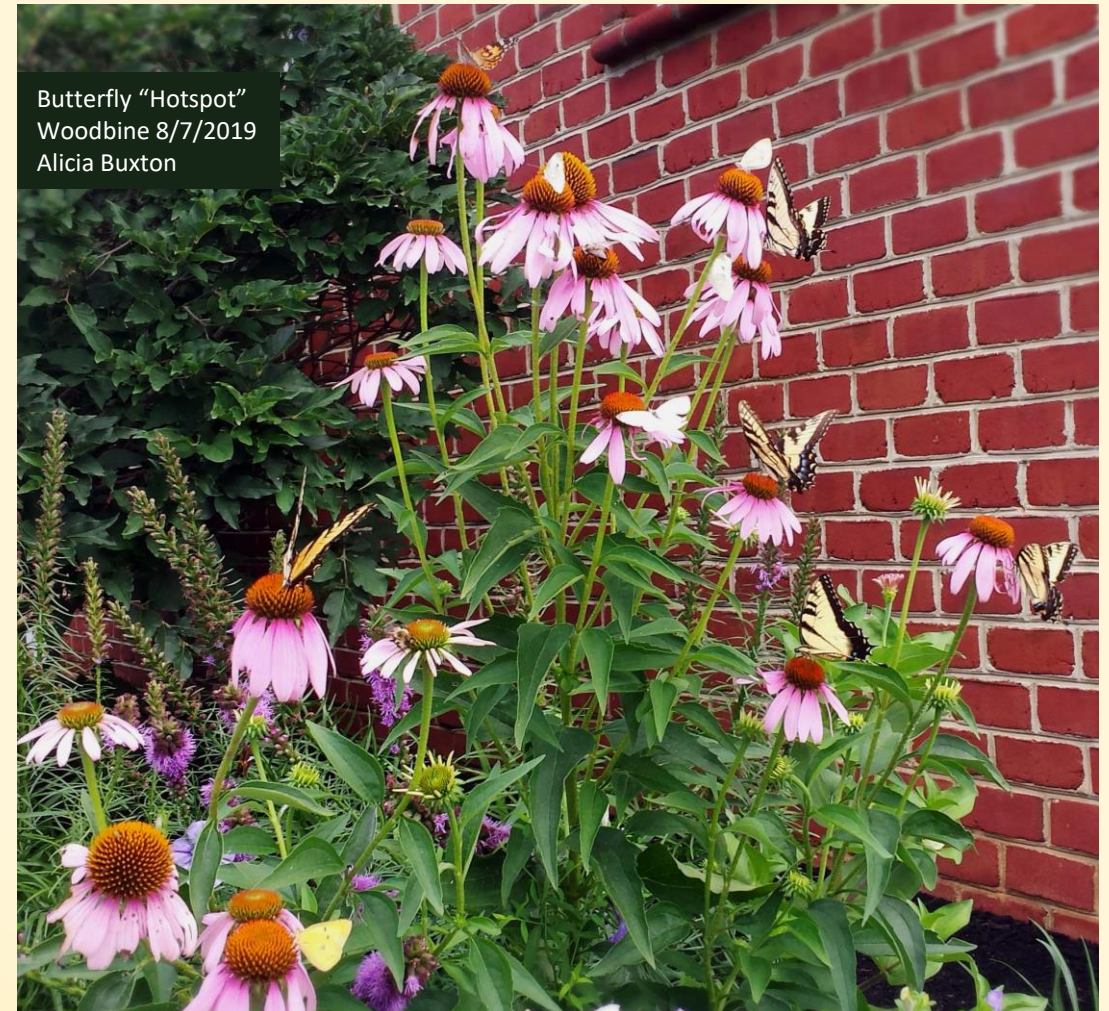


Clouded Skipper

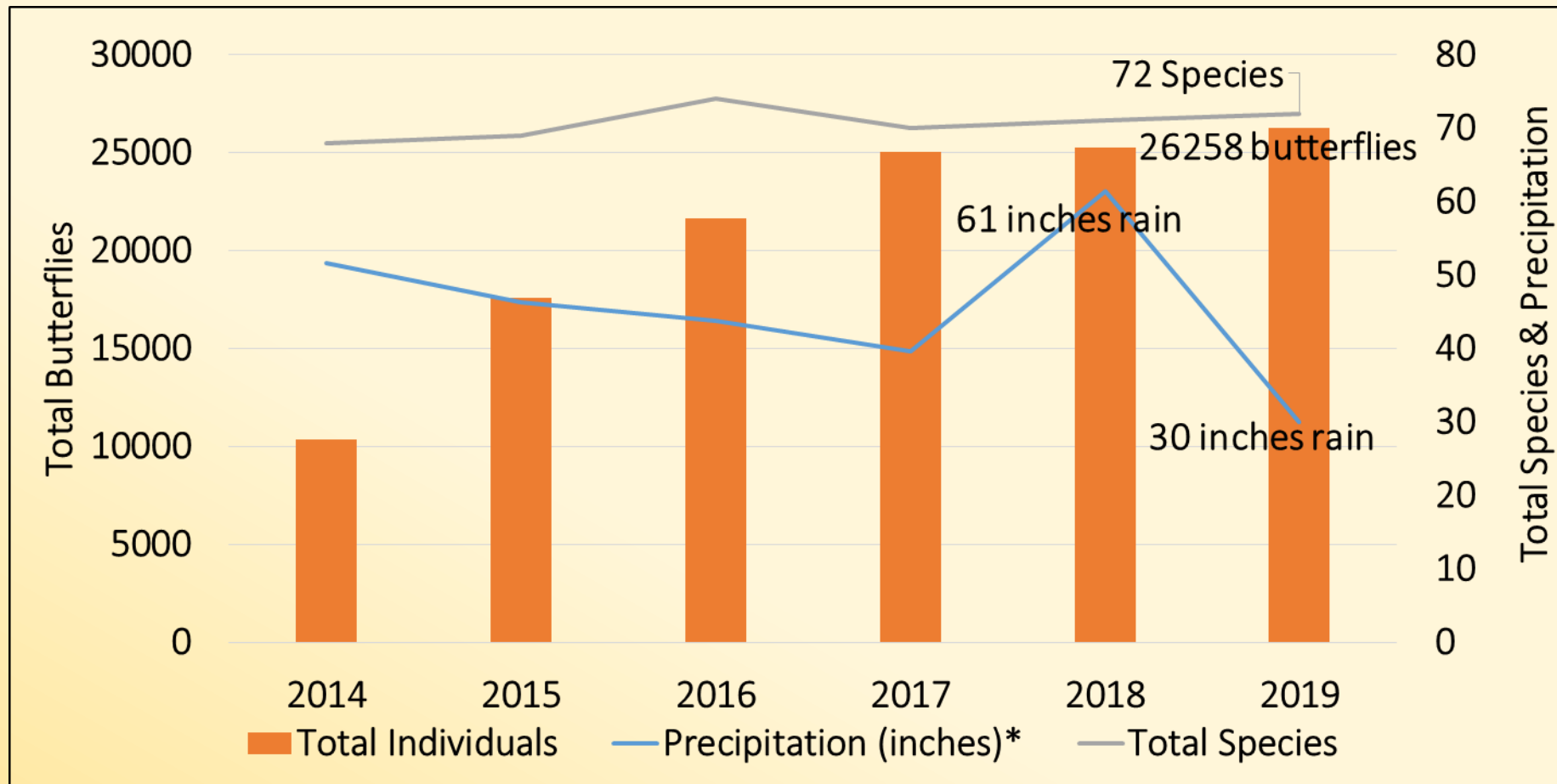
- 6 individuals total recorded in the 5-year survey
- 44 recorded in 2019
- Why? Irruption year? Good weather year?
Global warming? ID recognition?

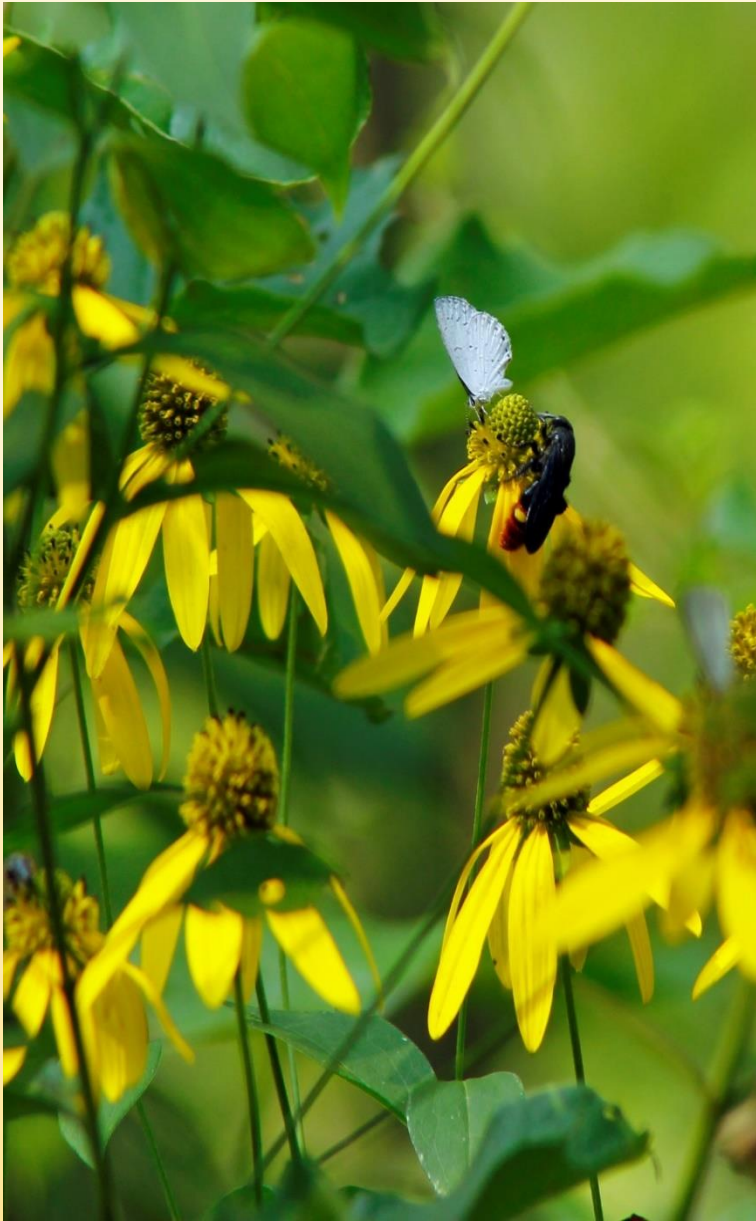
Butterfly Conservation Challenges

- Weather
- Site Differences in Butterfly & Species Abundance
 - Gardens & Meadows
 - Parks
 - Other Sites
- Habitats versus “Hot Spots”

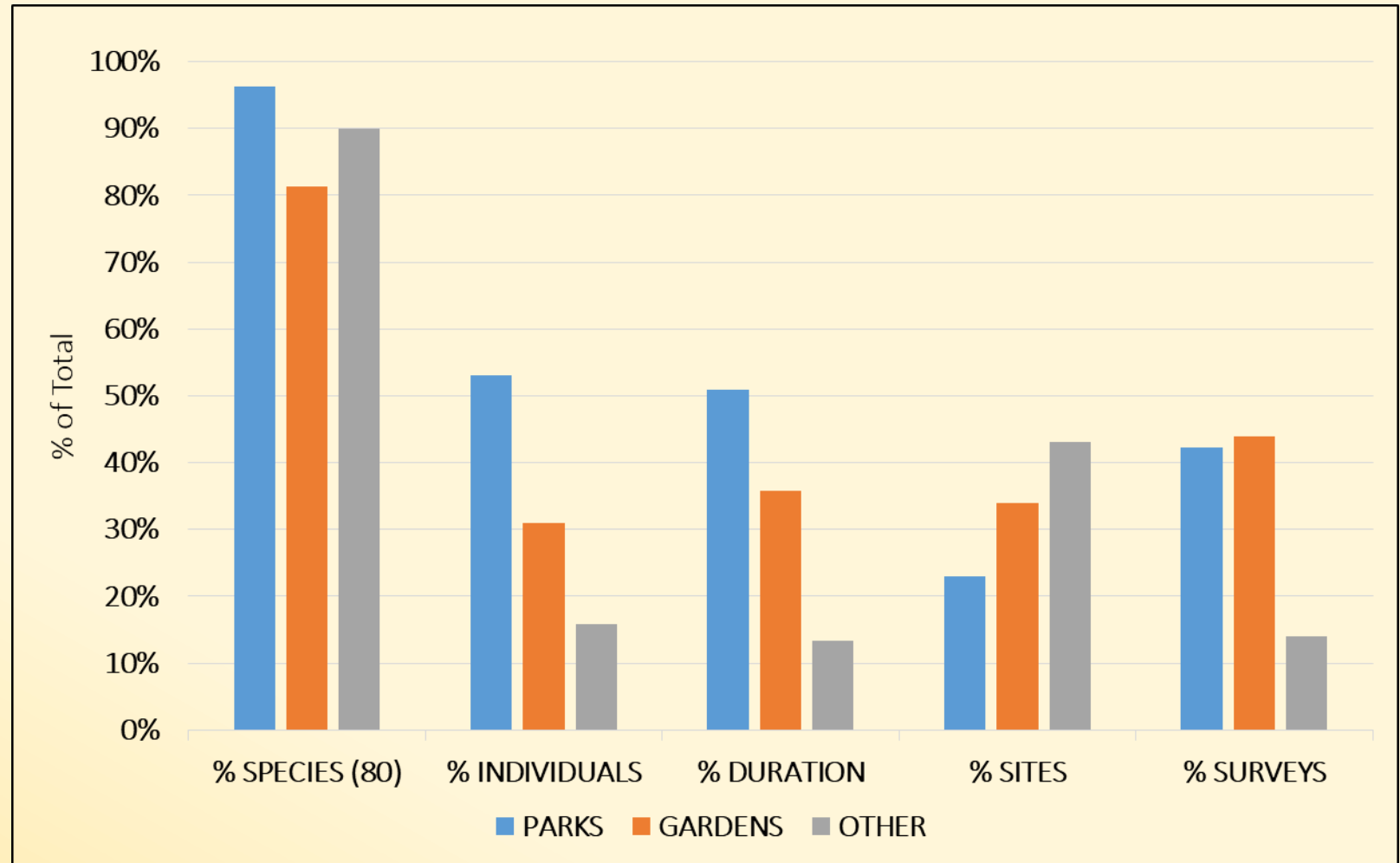


Comparison of Seasonal Precipitation with # of Species and Individual Butterflies Recorded





Comparison of 2014-2019 Survey Sites



Abundance: Total Butterflies Recorded in Parks 2014-2019

< 1% of Park Individual Butterflies Seen
 Blandair
 Font Hill
 Cedar Lane
 < 2% of Park Individual Butterflies Seen
 Warfields Pond
 PRSP
 Atholton
 MPEA
 Belmont

27 Parks <500 Individuals Seen

4%

Howard County Conservancy at Mount Pleasant
 21%

Patuxent Branch Trail
 12%

Meadowbrook Park
 8%

Robinson Nature Center
 6%

Lake Kittamaqundi & Vantage Point wetland, Lake Kittamaqundi
 6%

Rockburn Branch Park
 5%

Western Regional Park
 5%

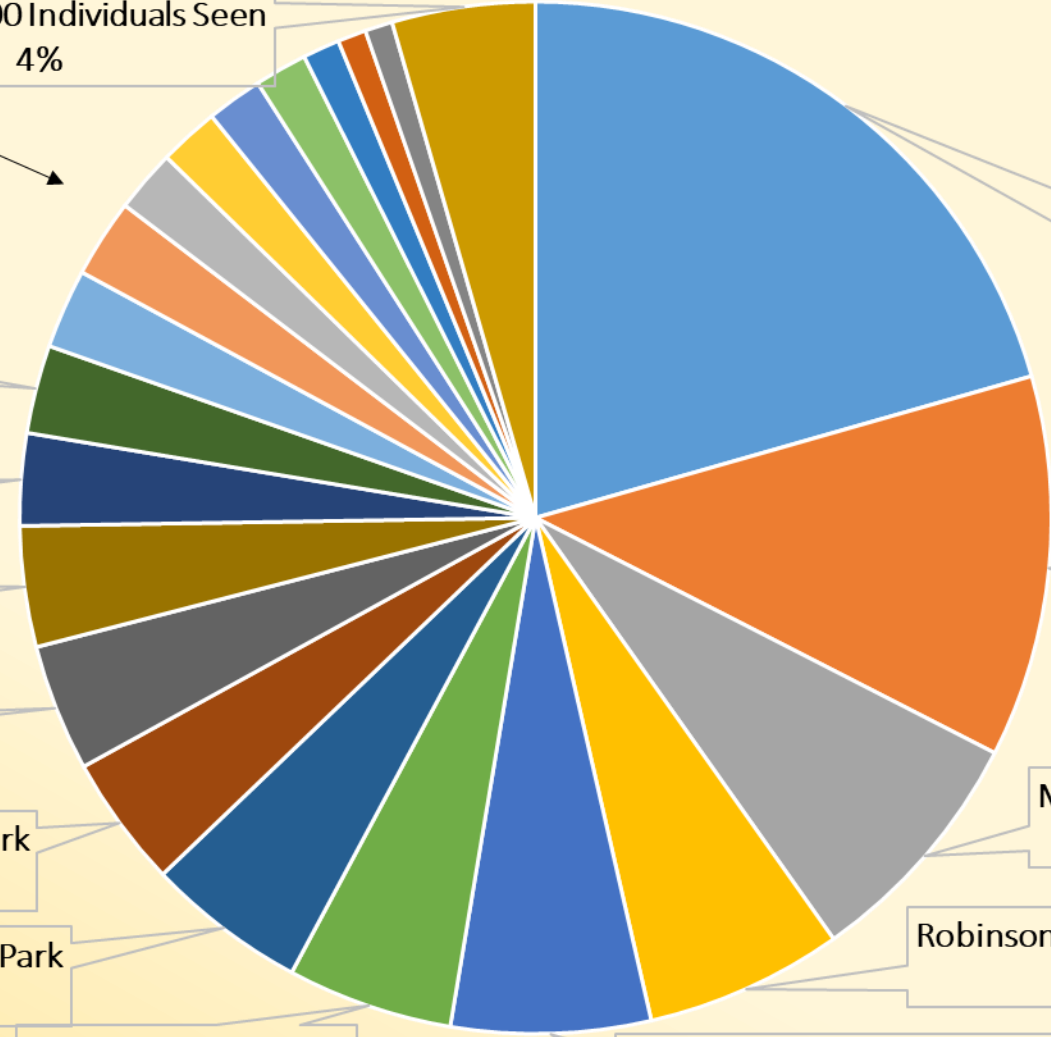
Schooley Mill Park
 4%

PVSP
 4%

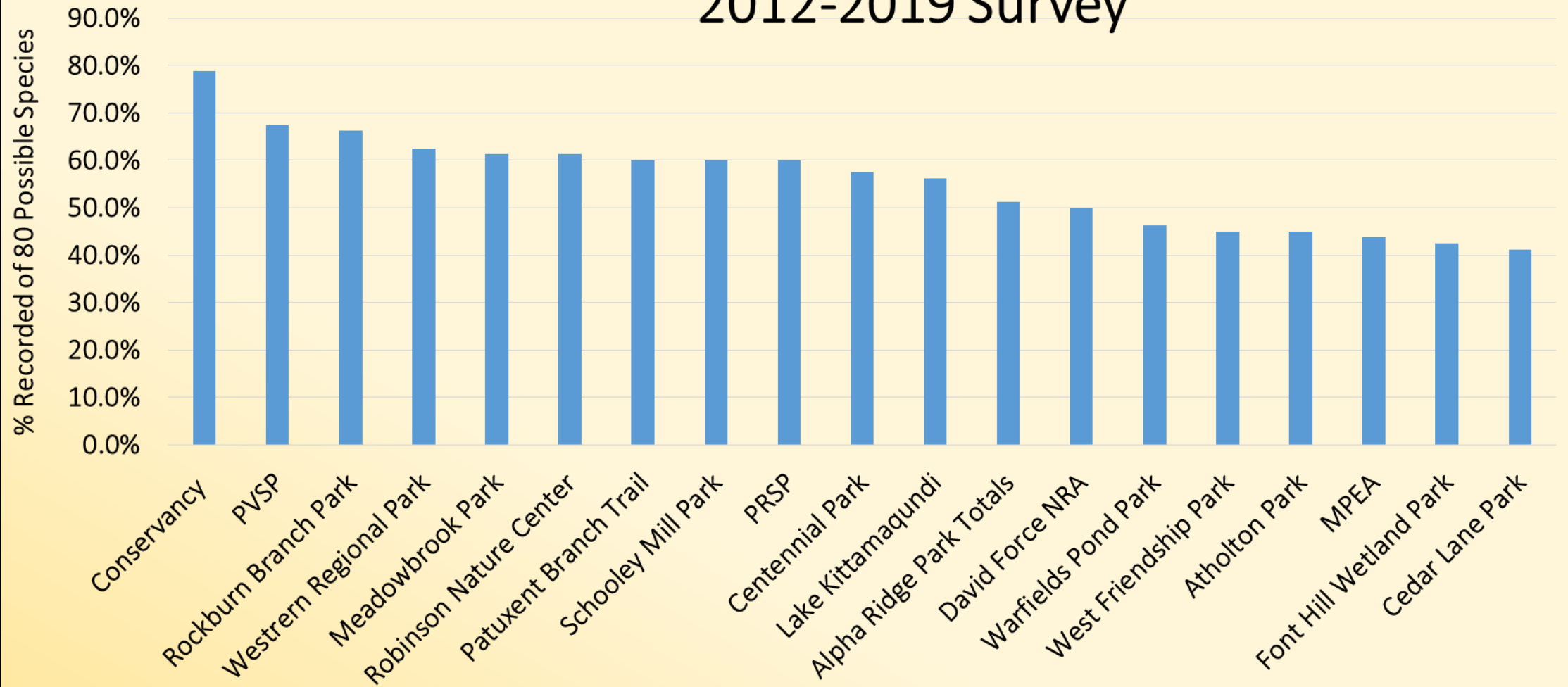
Alpha Ridge Park Totals
 4%

Centennial Park
 3%

David Force NRA
 3%



% Park Species of Total Recorded Species (80) 2012-2019 Survey

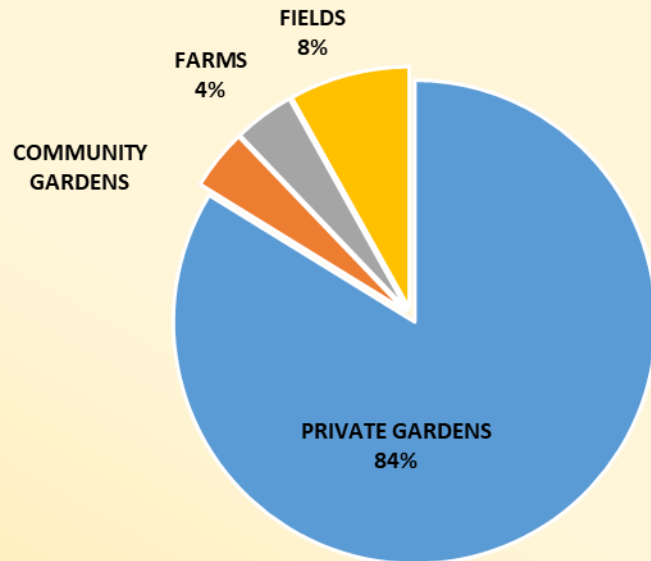


Parks with less than 40% species recorded not included

Gardens and Meadows

Provided Most Surveys of Butterfly Abundance and Species

Numbers of "Garden" Sites by Type



Garden & Meadow Unusual & Rare Species

Private Gardens: Giant Swallowtail, Tawny Emperor, Pipevine Swallowtail, Broad-winged Skipper and Long-tailed Skipper

Farms: Meadow Fritillary, American Copper, Common Checkered-Skipper

74 "Garden" Sites recorded:

44% of the Surveys (36% of time spent)
 33% of individual butterflies (abundance)
 83% of the species

62 Private Gardens: 37.4% surveys (29% time)

14.6 % individuals

80% species

3 Community Gardens: 3.9% surveys (3.6% time)

9.3% individuals

66.3% species

3 Farms: 31.7% surveys (2% time)

6.4% individuals

52.5% species

6 Fields & Meadows (natural & created)

1% of the surveys (1% time)

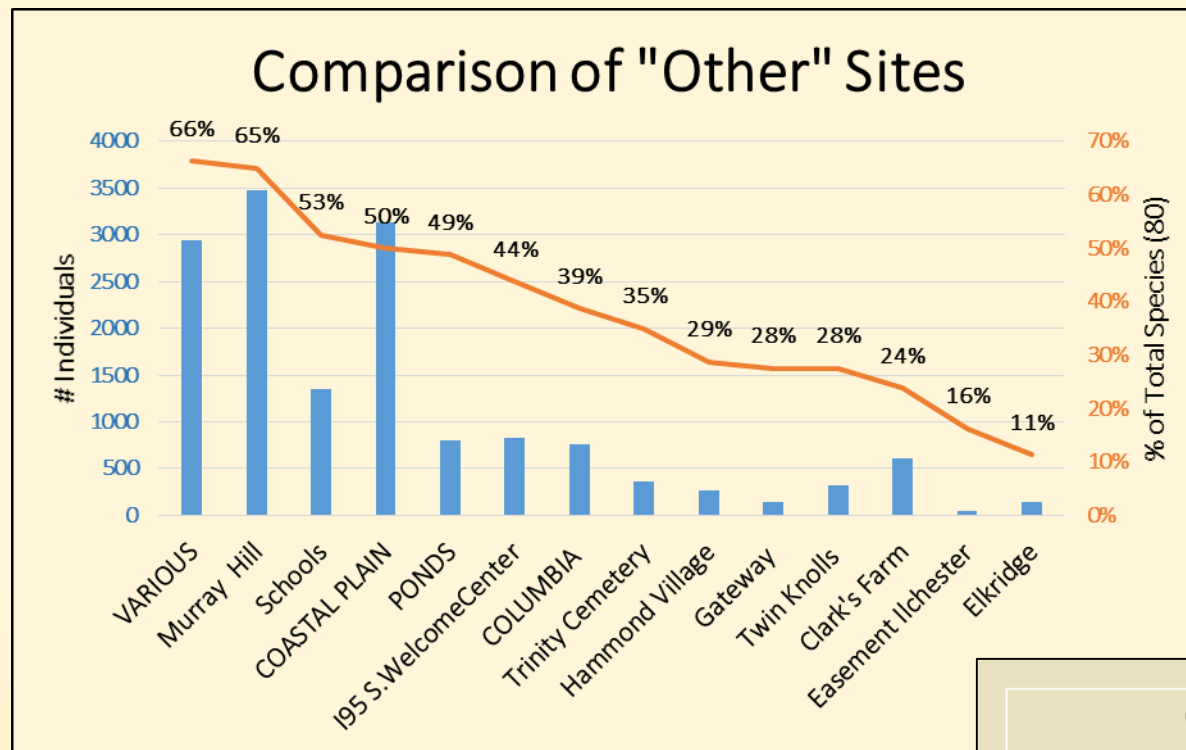
2.4% individuals

47.5% of the species

“Other” Sites are Almost Anywhere



Dusted Skipper
Murray Hill 5/18/15
Linda Hunt



Little Yellow
Linda Hunt 2017

Utility Easements, Disturbed & Waste Areas
Water Management Ponds, Cemeteries,
Golf Courses, Nurseries, School Yards, etc.

6 Species Found Primarily in "Unprotected" Areas		
Southern Cloudywing	Murray Hill	168
Northern Cloudywing	Murray Hill	47
Dusted Skipper	Murray Hill	22
Falcate Orangetip	Gateway (others)	111
Eastern Pine Elfin	Trinity (PRSP 1x, Rockburn)	13
Little Yellow	Rt. 1 Coastal Plain	8

Tawny Emperor
Meadowbrook Park 7/1/19
Kathy Litzinger

Butterfly Conservation

Meeting the Challenge:

- Personal Commitment & Action
- Howard County Bee City USA Initiative
(<https://www.beecityusa.org>)



The Challenge: To Preserve, Enhance, Create

Habitats



Waystations



for butterflies, bees, pollinators and other insects

Vulnerable Species Requiring a Specialized Habitat

Conservation Objective: Preserve & Enhance Limited Habitats

Dusted Skipper;
K. Heffernan



Attracts Specialists*
& Generalists

- *Dusted Skippers
- *Southern Cloudywing
- *Northern Cloudywing



Birdsfoot violet (*Violeta pedata*)
Murray Hill 5/1/2018
Linda Hunt



Southern Cloudywing; L. Hunt



Murray Hill Dump
5/17/19
Linda Hunt

Murray Hill powerline easement— an example of dry low quality soil simulating a “barrens” habitat



Pussytoes
Murray Hill 5/1/18
Linda Hunt

Murray Hill
5/17/19
Linda Hunt



Murray Hill sign
4/16/2017
Linda Hunt

Vulnerable Species Dependent on Limited Specific Host Plants

Preserve habitats with large groves of red cedar, hard pines, and beech

Encourage plantings of specific host plants in gardens and meadow habitats



Harvester K. Litzinger



Eastern Pine Elfin K. Litzinger



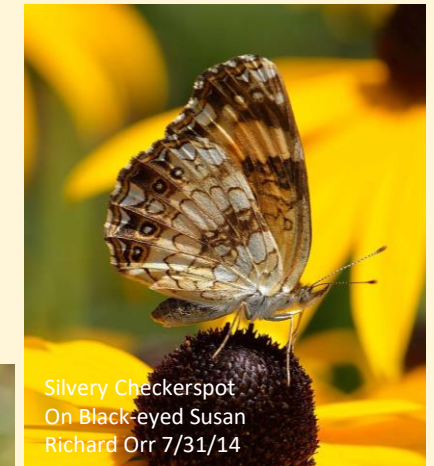
Cloudless Sulphur ovipositing
Linda Hunt
Daisy Meadow, 7/17/17



Juniper Hairstreak K. Heffernan



Pipevine Swallowtail;
K. Heffernan



Silvery Checkerspot
On Black-eyed Susan
Richard Orr 7/31/14

Maryland Senna
Pipevine (Aristolochia)
Wingstem & Black-eyed Susan

Conservation Objective: Preserve Habitat and Enhance Availability of Limited Host Plants

Sunny, flowery places



Black Swallowtail Nectaring

Waystation “Hot Spots”

Damp mud and sand



Swallowtails “Puddling” for minerals

Sunny rocks, logs, bare ground



Mourning Cloak Warming up,
Waiting for female

“Pubs” for Nectar &
Minerals,
Warming Up &
“Hooking Up”

Conservation Objective: Create garden/meadow Waystations.

Invite Butterflies to Your Backyard

Backyard Host Plants

Trees:

Red/White Oaks
Wild Cherry
Dogwood
Willows
Tulip Poplar
Elm
Pawpaw
Sassafras

Bushes:

Blueberry (*Vaccinium corymbosum*)
Spicebush
Viburnums
Swamp/"twig" Dogwoods

Perennials (Native, local Ecotypes):

Milkweed (regular soil) *Asclepias syriaca*
Swamp Milkweed (wet) *Asclepias incarnata*
Butterflyweed (dry) (*Asclepias tuberosa*)
Clover
Violets
Carrot/Parsley/Queen Anne's lace



Spicebush Swallowtail & Eastern Tiger Swallowtail on Butterflyweed (*Asclepias tuberosa*) 7-21-13

Provide: → moist soil/mud for minerals
→ rocks & bare soil for basking
→ shelter (trees, bushes, grasses, crevices for safety from weather & predators)

Backyard Nectar Plants

Shrubs

Buttonbush (*Cephalanthus occidentalis*)
Virginia Sweetspire (*Itea*)
Sweet Pepperbush (*Clethra alnifolia*)

Perennials (Native, local Ecotypes):

Asters (*Aster nova-belgii* & *A. novae-angliae*)
Blazing Star (*Liatris spicata*)
Coneflower (*Echinacea purpurea*)
Goldenrod (*Solidago* spp.)
Ironweed (*Vernonia noveboracensis*)
Joe Pye Weed 'Little Joe' (*Eupatorium* spp.)
Phlox (*paniculata* & ssp.)

Non-Native Annuals

Catmint (*Nepeta* 'Walker's Low')
Sedum 'Autumn Joy'
Verbena bonariensis (4' - irresistible!)

Non-Native Annuals for Containers

Blue ageratum
Bachelor's Button (pair with parsley, fennel)
Cosmos (dwarf varieties)
Penta
Petunia
Sweet Alyssum
Zinna (Lilliput)
Verbena (trailing, prostrate varieties)

NO PESTICIDES (of ANY type!!!)

Butterfly Conservation Action Items

You can help!



Actions from Butterfly Meeting in March, 2019

- **Locate butterflies:**

- *Continue survey to get additional years of status on various species (All)*
- *Expand the number of known locations for the species of conservation concern (Need help)*
- *Locate butterflies that were rarely or not seen in the survey (Need help)*

- **Education:**

- Improve skipper identification (Kevin)
- *Develop knowledge of and ability to identify host plants (Linda, others?)*
- Publish the results of the survey to date (Kevin, Linda)

Actions from Butterfly Meeting in March, 2019

- **Conservation / Habitat:**

- *Encourage the planting of more butterfly gardens and meadows (Pollinator Committee of Bee City)*
- *Develop a database of trees, shrubs, flowers, and plants that serve as host and nectar plants (Kevin, Native Plant subcommittee)*
- *Coordinate with parks and utility groups on mowing and herbicide spraying schedules (Pollinator Committee of Bee City)*

Actions from Butterfly Meeting in March, 2019

- **Develop interest:**

- Encourage interest in butterflies through:
 - additional general butterfly walks (Linda, Kevin, Kathy L, Woody, Sue M, others?)
 - targeted species walks (Linda, Kevin, Kathy L, others?)
 - out of county trips (Linda, Kevin, Kathy B, Tim R, others?)
- *Create a rare butterfly alert system via a list serve*
- *Encouraging interest through timely emails re what is expected out soon (Linda?)*
- Encouraging interest in butterflies through presentations (Linda, Kevin, others?)
- *Placing butterfly brew stations at Mt. Pleasant (Woody)*

Expand the number of known locations

1. Falcate Orange-tip
2. Henry's Elfin
3. Southern Cloudywing
4. Northern Cloudywing
5. Dusted Skipper
6. Eastern Pine Elfin
7. Hackberry Emperor
- 8. Tawny Emperor**
- 9. American Snout**
10. Coral Hairstreak
11. Mulberry Wing
12. Common Sootywing
13. Silvery Checkerspot
14. White-M Hairstreak
15. Common Wood-Nymph
16. Broad-winged Skipper
17. Viceroy
- 18. Zebra Swallowtail**
19. Appalachian Brown
20. Meadow Fritillary

Locate Butterflies that were Rarely Seen or Not Seen during the survey:



1. Spring Azure (E-April)
2. Sleepy Duskywing (M-April)
3. Eastern Pine Elfin (L-April)
4. Brown Elfin (L-April)
5. Dreamy Duskywing (E-May)
6. Baltimore Checkerspot (M-June)
7. Mulberry Wing (E-July)
8. Hayhurst's Scallopwing (L-July)
9. Little Yellow (L-Aug)
10. Bronze Copper

Each Person Matters

- Every one of the 62 people who sent in a survey this year made an important contribution to this study. Thank you!
- That being said, the graph shows that a majority of the butterflies seen were reported by a few individuals.

You can make a difference!

