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)
"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

Xerces Blue
https://www.floridamuseum.ufl.edu/100years/xerces-blue/

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

https://www.fws.gov/endangered/
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

Pollinator Studies Dominate Most Recent Research

Most “hairy”  

4,000 + Bee species in North America 

11,000 + Moth species in North America 

700 + Butterfly species in North America

Least “hairy”  

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?

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<td>48</td>
<td>44</td>
<td>48</td>
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<td>870</td>
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<td>Duration(min.)</td>
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<td>35924</td>
<td>50196</td>
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<td>49242</td>
<td>230556</td>
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<td>Species</td>
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<td>21622</td>
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<td>25245</td>
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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

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

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

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
“Other” Sites are Almost Anywhere

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

Comparison of "Other" Sites

<table>
<thead>
<tr>
<th>Site</th>
<th># Individuals</th>
<th>% of Total Species</th>
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</thead>
<tbody>
<tr>
<td>VARIOUS</td>
<td>65</td>
<td>11%</td>
</tr>
<tr>
<td>Murray Hill</td>
<td>65</td>
<td>11%</td>
</tr>
<tr>
<td>Schools</td>
<td>53</td>
<td>28%</td>
</tr>
<tr>
<td>COASTAL PLAIN</td>
<td>50</td>
<td>28%</td>
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<tr>
<td>ENTRIP Welcome Center</td>
<td>49</td>
<td>28%</td>
</tr>
<tr>
<td>PONDS</td>
<td>44</td>
<td>24%</td>
</tr>
<tr>
<td>COLUMBIA</td>
<td>39</td>
<td>24%</td>
</tr>
<tr>
<td>Trinity Cemetery</td>
<td>35</td>
<td></td>
</tr>
<tr>
<td>Hammond Village</td>
<td>29</td>
<td></td>
</tr>
<tr>
<td>Gateway</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>Twin Kolls</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>Clark’s Farm</td>
<td>24</td>
<td></td>
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<tr>
<td>Freemont Ilexeter</td>
<td>16</td>
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<tr>
<td>Elkridge</td>
<td>11</td>
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</tr>
</tbody>
</table>

6 Species Found Primarily in “Unprotected” Areas

<table>
<thead>
<tr>
<th>Species</th>
<th>Location</th>
<th>Count</th>
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</thead>
<tbody>
<tr>
<td>Southern Cloudywing</td>
<td>Murray Hill</td>
<td>168</td>
</tr>
<tr>
<td>Northern Cloudywing</td>
<td>Murray Hill</td>
<td>47</td>
</tr>
<tr>
<td>Dusted Skipper</td>
<td>Murray Hill</td>
<td>22</td>
</tr>
<tr>
<td>Falcate Orangetip</td>
<td>Gateway (others)</td>
<td>111</td>
</tr>
<tr>
<td>Eastern Pine Elfin</td>
<td>Trinity (PRSP 1x, Rockburn)</td>
<td>13</td>
</tr>
<tr>
<td>Little Yellow</td>
<td>Rt. 1 Coastal Plain</td>
<td>8</td>
</tr>
</tbody>
</table>
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
- Gardens
- Meadows
- Tree Groves
- Forests
- Wetlands

Waystations
- Gardens
- Host Plants
- Rotting Fruit
- Puddles

for butterflies, bees, pollinators and other insects
Vulnerable Species Requiring a Specialized Habitat

Conservation Objective: Preserve & Enhance Limited Habitats

Attracts Specialists* & Generalists
*Dusted Skippers
*Southern Cloudywing
*Northern Cloudywing

Murray Hill powerline easement – an example of dry low quality soil simulating a “barrens” habitat
Vulnerable Species Dependent on Limited Specific Host Plants

Conservation Objective: Preserve Habitat and Enhance Availability of Limited 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

- Eastern Pine Elfin K. Litzinger
- Juniper Hairstreak K. Heffernan
- Silvery Checkerspot
- Harvester
- Maryland Senna
- Pipevine (Aristolochia)
- Wingstem & Black-eyed Susan
- Pipevine Swallowtail; K. Heffernan
- Pipevine Swallowtail; K. Heffernan
- Pipevine Swallowtail; K. Heffernan
- Pipevine Swallowtail; K. Heffernan

Richard Orr 7/31/14

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

Barbara White 2018
Waystation **“Hot Spots”**

- Sunny, flowery places
- Sunny rocks, logs, bare ground
- Damp mud and sand

Conservation Objective: Create garden/meadow Waystations.

**Black Swallowtail Nectaring**

**Mourning Cloak Warming up, Waiting for female**

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

Swallowtails “Puddling” for minerals
# Invite Butterflies to Your Backyard

## Backyard Host Plants

<table>
<thead>
<tr>
<th>Trees:</th>
<th>Backyard Nectar Plants</th>
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<tbody>
<tr>
<td>Red/White Oaks</td>
<td>Shrubs</td>
</tr>
<tr>
<td>Wild Cherry</td>
<td>Buttonbush (Cephalanthus occidentalis)</td>
</tr>
<tr>
<td>Dogwood</td>
<td>VirginiaSweetspire (Itea)</td>
</tr>
<tr>
<td>Willows</td>
<td>Sweet Pepperbush (Clethra alnifolia)</td>
</tr>
<tr>
<td>Tulip Poplar</td>
<td>Perennials (Native, local Ecotypes):</td>
</tr>
<tr>
<td>Elm</td>
<td>Asters (Aster nova-belgii &amp; A. novae-angliae)</td>
</tr>
<tr>
<td>Pawpaw</td>
<td>Blazing Star (Liatris spicata)</td>
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<tr>
<td>Sassafras</td>
<td>Coneflower (Echinacea purpurea)</td>
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<td></td>
<td>Goldenrod (Solidago spp.)</td>
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<td></td>
<td>Ironweed (Vernonia noveboracensis)</td>
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<tr>
<td></td>
<td>Joe Pye Weed ‘Little Joe’ (Eupatorium spp.)</td>
</tr>
<tr>
<td></td>
<td>Phlox (paniculata &amp; ssp.)</td>
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<tr>
<td></td>
<td>Non-Native Annuals</td>
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<tr>
<td></td>
<td>Catmint (Nepeta ‘Walker’s Low’)</td>
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<tr>
<td></td>
<td>Sedum ‘Autumn Joy’</td>
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<tr>
<td></td>
<td>Verbena bonariensis (4’ - irresistable!)</td>
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<td></td>
<td>Non-Native Annuals for Containers</td>
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<td></td>
<td>Blue ageratum</td>
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<td></td>
<td>Bachelor’s Button (pair with parsley, fennel)</td>
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<td>Cosmos (dwarf varieties)</td>
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<td></td>
<td>Penta</td>
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<td></td>
<td>Petunia</td>
</tr>
<tr>
<td></td>
<td>Sweet Alyssum</td>
</tr>
<tr>
<td></td>
<td>Zinna (Lilliput)</td>
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<tr>
<td></td>
<td>Verbena (trailing, prostrate varieties)</td>
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</table>

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

- **Perennials (Native, local Ecotypes):**
  - Milkweed (regular soil) Asclepias syricaca
  - Swamp Milkweed (wet) Asclepias incarnata
  - Butterflyweed (dry) (Asclepias tuberosa)
  - Clover
  - Violets
  - Carrot/Parsley/Queen Anne’s lace

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

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

Bronze Copper. Bonnie Ott
Meadowbrook 10/18/2016
• 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!