

2022 NRI Survey of Butterfly Species in Ridgefield

Lukas Keras



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Summary

The 2022 NRI butterfly species survey was conducted April through September, averaging 2 field sessions per month, at selected sites in different habitats throughout Ridgefield. The previous NRI butterfly survey was conducted in Ridgefield in the summer of 2010 and 2009.

In the 2022 survey:

- 4 species were recorded that are new for both the Ridgefield NRI and iNaturalist, one of these listed as “vulnerable” in CT by NatureServe, and one as “special concern” by CT DEEP
- 14 species new for the Ridgefield NRI were recorded
- 5 species not previously recorded on iNaturalist (see Sources below) from Ridgefield were added to the Ridgefield list of butterflies on iNaturalist

Methods and locations

This survey was conducted at:

- The DeMasi-Metowski meadow
- Norwalk River Floodplain
- McKeon Farm
- Levy Park
- Pine Mountain
- Seth Low SP
- Lake Windwing

Butterflies were identified visually while flying or nectaring. Those that had more subtle characteristics (or were rare) were captured with a net for positive identification and photography, and released unharmed. When in flight, for elusive or distant individuals, characteristics such as color, flight pattern, behavior, size, date, and habitat were used for identification.

An effective method used in this survey for finding large or strong - flying butterflies is to look for the butterflies engaging in a behavior known as “hill-topping.” This method is especially useful in spring, when there is not much nectar to attract butterflies and when the leaves have not expanded to the point when looking into the canopy is obscured. Flying insects often congregate at higher elevations, possibly to look for potential mates from a higher altitude and better view. Hill-topping butterflies are difficult to observe up close, especially if they are in the treetops, but often can be

identified in flight, as mentioned before. Because so many species are drawn to the tops of ridges, in the spring on a ridge one can find otherwise uncommon or low-density species such as the Black Swallowtail or Mourning Cloak. On Pine Mountain, aside from butterflies, many other insect species can be found hill-topping. One example of an otherwise uncommon species that was found is the Striated Jewel Beetle, with only two other records on iNaturalist from CT.



Rare Species, New in 2022 NRI Survey:

1. Brown Elfin

The Brown Elfin butterfly (listed as “vulnerable” in CT by NatureServe) is considered to be a very localized species, and requires large patches of lowbush blueberry, the only larval foodplant and also the main adult nectar source, to survive. The Brown Elfin also requires exposed bedrock in full sun for the adults to properly camouflage when resting and to help warm up on cool spring mornings. The lowbush blueberry patches on the small overlook on Pine Mountain have sustained an unusually vibrant population of this butterfly, especially considering the small size of the habitat. Judging from vegetation such as the pitch pine growing at the overlook, it is likely that the area of open habitat was formerly larger and has shrunk to only this small area. Historically, open, ridgetop habitats were maintained by fires caused by lightning strikes, creating an unusual habitat with rare plants that were able to withstand shallow, dry soil. However, many of the species found in these habitats, such as the Brown Elfin, continue to survive without periodic fires in areas that have been artificially cleared or maintained, like this overlook.

While there was a known population in Redding (Victor DeMasi, pers. comm.), there have not been prior records from Ridgefield in iNaturalist, GBIF, and the Yale Peabody Museum online collections, and this appears to be a new population of the Brown Elfin butterfly.

2. Dion Skipper

One of the other rare habitats that have been preserved in Ridgefield is the river floodplain. A good example of this habitat is the Norwalk River Flood Control Site near Simpaug Turnpike. The wet, seasonally flooded meadow supports marsh-loving plants such as Buttonbush and Swamp Milkweed, both pollinator magnets and caterpillar food plants for the Hydrangea Sphinx Moth and Monarch Butterfly, respectively. Grass- and sedge- feeding Skipper butterflies are particularly diverse in these habitats. Among the more notable finds were the local and uncommon Black Dash Skipper, and the ultra-rare Dion Skipper, both indicators of a good habitat and both restricted to high-quality wetlands. This population of Dion Skippers was present into the early 1990's, but habitat succession reduced nectar plants and sedge host plants, causing a local extirpation of this species. With the Emerald Ash Borer beetle killing off the older Ash trees, however, the habitat at the NWR Floodplain site has opened up and is once again hospitable to the Dion Skipper and other wet meadow specialist butterflies. The Dion Skipper is listed as "special concern" in CT by DEEP (see Sources below) and was perhaps the most celebrated addition to the list.



Above: a Brown Elfin butterfly perches on its host plant, Lowbush Blueberry.

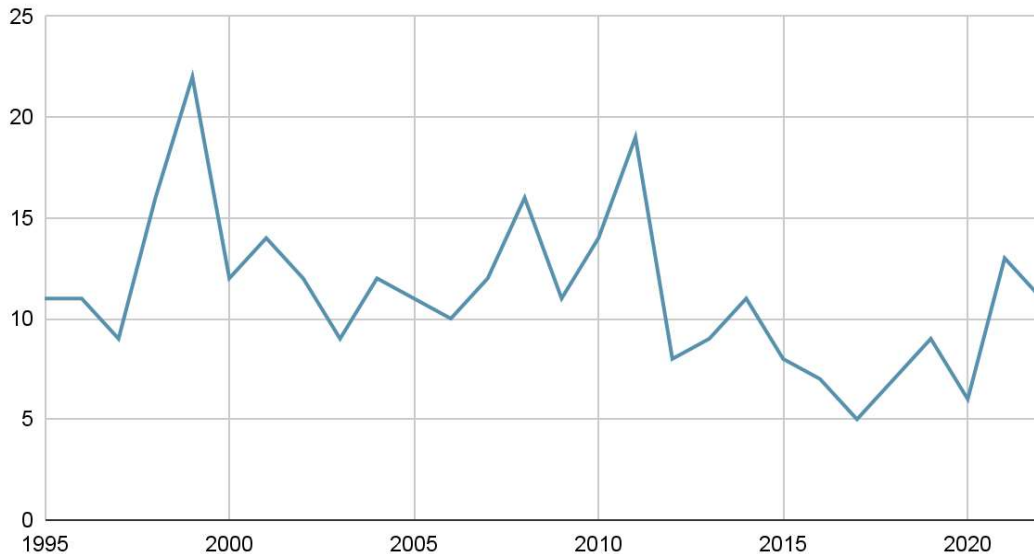


A male Dion Skipper captured at the NWR Floodplain site. It was released unharmed.

Species changes since 2010 NRI Survey

To determine changes in butterfly biodiversity in Ridgefield, data from the 2022 field surveys, NABA annual Fourth of July counts, and records from iNaturalist were used. For the 10 years since the last Ridgefield NRI survey, some of the butterfly species statistics can be obtained from the annual NABA 4th of July counts (Victor DeMasi, unpublished data). NABA counts are only available for 2 combined Ridgefield sites, the DeMasi-Metowski meadow and adjacent NWR Floodplain. While it is only available for this single area in Ridgefield, the 4th of July count has been conducted consistently each year since 1995, and so is the most comprehensive record available of species density change over time at Ridgefield sites. Looking at the NABA counts, there is a slight downward trend in the number of species seen from 1995 to 2022. However, there does not seem to be a clear trend in species numbers from 2009 and '10 (species from both years were included in the 2010 NRI report) to 2022.

4th of July species counts since 1995 at DeMasi House and NWR Site



The 2022 and 2009-2010 NRI surveys were both conducted over the complete duration of the season and throughout Ridgefield, as opposed to surveying in only two sites in the immediate vicinity of each other for one day each year, like the annual 4th of July counts.

During the Ridgefield NRI surveys, 28 species were recorded in 2010, and 35 in the 2022 survey. Of these, 21 species were recorded in both surveys.

7 species that were recorded in 2010 were not observed during the 2022 field surveys:

- American Copper
- Common Buckeye
- Common Wood-Nymph
- Painted Lady
- Peck's Skipper
- Tawny-edge Skipper
- Wild Indigo Duskywing

. 14 of the species recorded in 2022 field surveys were not observed in 2010:

- Black Swallowtail
- Brown Elfin
- Dion Skipper
- Eastern Comma
- Giant Swallowtail
- Juvenal's Duskywing
- Least Skipper
- Little Wood Satyr

- Mourning Cloak
- Orange Sulphur
- Red-Banded Hairstreak
- Spring Azure Species Complex
- Zabulon Skipper

Some of the species observed during the 2010 NRI survey but not during the 2022 NRI survey are sporadic and unpredictable in occurrence, so iNaturalist records from 2022 and prior years were checked to see if any of the species that were not observed during the 2022 NRI survey field trips were seen by other iNaturalist users. One of the seven species that were not observed in the 2022 NRI field trips, the Peck's Skipper butterfly, was seen in 2022 at a private residence. Five of the remaining six species were reported on iNaturalist in prior years; all but 1 (Common Wood Nymph at Weir Farm in 2020) in private residences:

- American Copper (2018)
- Painted Lady (2019)
- Tawny-Edge Skipper (2020)
- Common Wood-Nymph (2020,2021)
- Buckeye (2021)

The remaining 1 species (Wild Indigo Duskywing) that was observed in the 2010 NRI survey but was not observed in the 2022 survey and is not in Ridgefield iNaturalist records for any year is a low - density, widely dispersed species that, based on recent

iNaturalist records from nearby locations such as southern Danbury, may still be resident in Ridgefield.

Five species that were not observed in either the 2010 or the 2022 NRI surveys were recorded on iNaturalist between 2010 and 2022:

- Meadow Fritillary (2018)
- Viceroy (2019)
- Common Ringlet (2022)
- Northern Pearly-Eye (2022)
- Red-Spotted Purple (2022)

Butterflies Recorded In 2022 NRI Survey

Butterfly species color coded by family:

Common Name	Latin Name
Skippers	Hesperiidae
Gossamer-winged Butterflies	Lycaenidae
Brush-footed Butterflies	Nymphalidae
Swallowtail Butterflies	Papilionidae
Whites and Sulphurs	Pieridae

Key to location acronyms is below. **Bolded** species are new for Ridgefield.

Species	Latin name	location/s
Black Dash	Euphyes conspicua	NWR DM
Broad-Winged Skipper	Poanes viator	GS
Dion Skipper	Euphyes dion	NWR
Dun Skipper	Euphyes vestris	NWR
European Skipper	Thymelicus lineola	DM NWR
Hobomok Skipper	Lon hobomok	DM
Juvenal's Duskywing	Errynis juvenalis	DM
Least Skipper	Ancyloxypha numitor	NWR DM GS
Little Glassywing	Vernia verna	LW NWR DM LP
Northern Broken-Dash	Wallengrenia egeremet	DM
Silver-Spotted Skipper	Epargyreus clarus	LP NWR LW GS DM
Zabulon Skipper	Lon zabulon	LW LP WF DM
Banded Hairstreak	Satyrium calanus	DM NWR
Brown Elfin	Callophrys augustinus	PM
Eastern Tailed-Blue	Cupido comyntas	DM GS LP
Red-Banded Hairstreak	Calycopis cecrops	LP DM
Spring Azure Species Complex	complex Celastrina ladon	PM
Summer Azure	Celastrina neglecta	LP
American Lady	Vanessa virginiensis	LP
Appalachian Brown	Satyroides appalachia	NWR GS

Eastern Comma	<i>Polygona comma</i>	LP
Great Spangled Fritillary	<i>Speyeria cybele</i>	DM
Little Wood Satyr	<i>Megisto cymela</i>	WF DM NWR
Monarch	<i>Danaus plexippus</i>	DM NWR LW WF MF GS LP
Mourning Cloak	<i>Nymphalis antiopa</i>	PM LP SL NWR
Pearl Crescent	<i>Phyciodes tharos</i>	LP GS MF
Question Mark	<i>Polygona interrogationis</i>	NWR
Red Admiral	<i>Vanessa atlanta</i>	NWR
Black Swallowtail	<i>Papilio polyxenes</i>	SL
Eastern tiger swallowtail	<i>Papilio glaucus</i>	PM LW DM SL GS
Giant Swallowtail	<i>Papilio cresphontes</i>	DM
Spicebush swallowtail	<i>Papilio troilus</i>	PM SL GS DM
Cabbage white	<i>Pieris rapae</i>	DM NWR LP MF
Clouded Sulphur	<i>Colias philodice</i>	NWR MF DM
Orange Sulphur	<i>Colias eurytheme</i>	LP MF DM

Key to location acronyms:

DM	DeMasi Meadow
GS	Great Swamp
LW	Lake Windwing
LP	Levy Park
MF	McKeon Farm
NWR	NWR Floodplain
PM	Pine Mountain
SL	Seth Low State Park
WF	Weir Farm

Additions to iNaturalist, New for Ridgefield

As part of the 2022 survey, we expanded the iNaturalist list of butterflies for Ridgefield by 5 species:

- Black Dash (*Euphyes conspicua*)
- Brown Elfin (*Callophrys augustinus*)
- Dion Skipper (*Euphyes dion*)
- Little Glassywing (*Vernia verna*)
- Orange Sulphur (*Colias eurytheme*)

Of these, the Dion Skipper is listed as “special concern” by CT DEEP, and Brown Elfin is listed as “vulnerable” in Connecticut by NatureServe (see Sources below).



Additional Notes:

Appalachian Azure (*Celastrina neglectamajor*)

The Appalachian Azure, a rare butterfly, was recorded from one location in Ridgefield in 1997 (YPM online collections, see Sources below). The caterpillar of the Appalachian Azure feeds only on developing flower buds of Black Cohosh, a plant that grows only on rich limestone soil in woodlands. Black cohosh is present at several sites in Ridgefield, including across the road from the Levy Park survey site. We were unable to find adult Appalachian Azures flying in Black Cohosh patches, and no caterpillars of this species were found during the extensive searching and foliage gleaning on Black Cohosh that was conducted this year. All *Celastrina* (Azure butterfly) caterpillars found on Black Cohosh were raised to adulthood by Dr. Lawrence Gall and identified to be Summer Azure (*Celastrina neglecta*), a much more common species that can share the same food plant and is identical as a caterpillar. It is unclear if the Appalachian Azure is still present in Ridgefield or not, but the foodplant, Black Cohosh, still occurs. Habitat change may have contributed to a local extirpation, but it is an uncommon species and may have just been overlooked. If more rich forest edge sites with Black Cohosh are discovered, searching for this species would be worthwhile.

Future Survey Ideas

The diverse habitats in Ridgefield offer many possibilities for future studies. A rare Skipper, the Mulberry Wing, lives in wetlands, often along with the Black Dash and Dion Skipper. It likely lives in the Norwalk River Floodplain and searching for it there and at other wetlands in Ridgefield might be worthwhile. The Bronze Copper butterfly was known to inhabit the Floodplain. While it has not been seen for many years, the habitat is opening up due to the Emerald Ash Borer and the Bronze Copper may come back, like the Dion Skipper.

These same habitats may support just as diverse moth population. The Norwalk River Floodplain has extensive growth of buttonbush, the main food plant for a rare sphinx moth, *Darapsa versicolor*. Ash tree saplings, not yet vulnerable to the Ash Borer, growing in the Norwalk River Floodplain may support populations of declining moths such as the Sphinx *chersis*, the Great Ash Sphinx, *Sphinx kalmiae*, or the Laurel Sphinx, and the critically endangered *Manduca jasminaerium*, or Ash Sphinx (which has been previously recorded at this site). One of the most promising moth habitats that I saw was the woods near Lake Windwing. There are many large oak and hickory trees that would support many species of *Catocala*, or Underwing moths. I was able to find several uncommon species at Lake Windwing on one day this past summer, and based on the results from that day it would definitely be worth surveying. There is lots of potential for discovery, as it is a suitable habitat in a less - explored area by *Catocala* moth experts.

Appendix - 2009-10 NRI survey butterfly species list

American Copper
American Lady
Appalachian Brown
Black Dash
Broad-Winged Skipper
Cabbage White
Clouded Sulphur
Common Buckeye
Common Wood Nymph
Dun Skipper
European Skipper
Great Spangled Fritillary
Hobomok Skipper
Little Glassywing
Monarch
Northern Broken-Dash Skipper
Painted Lady
Pearl Crescent
Peck's Skipper
Question Mark
Red Admiral
Silver-Spotted Skipper
Spicebush Swallowtail
Summer Azure
Eastern Tailed Blue
Tawny-Edged Skipper
Eastern Tiger Swallowtail
Wild Indigo Duskywing

The original 2009-10 NRI survey report can be found at this URL:

https://www.ridgefieldct.org/sites/g/files/vyhli4916/f/uploads/butterflies_seen_in_ridgefield2.pdf

Sources

1. DEEP List of endangered invertebrates in Connecticut:

<https://portal.ct.gov/DEEP/Endangered-Species/Endangered-Species-Listings/Endangered-Threatened--Special-Concern-Invertebrates>

2. GBIF Brown Elfin <https://www.gbif.org/species/4300303>

3. iNaturalist <https://www.iNaturalist.org/>

4. Naturereserve <https://explorer.natureserve.org/>

5. YPM Online Collections Appalachian Azure record:

<https://collections.peabody.yale.edu/search/Record/YPM-ENT-820711>