

# American Butterflies

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The Conservation Issue

Art  
Contest

Conservation  
in Ontario

Feeling Blue in Miami

Prairie Butterflies Hit Potholes

Is Organic Better  
For Butterflies?

A Butterfly Count  
Counts Fewer Butterflies

Landscapes,  
Farms and Butterflies

Hot Seens

Hermes Copper



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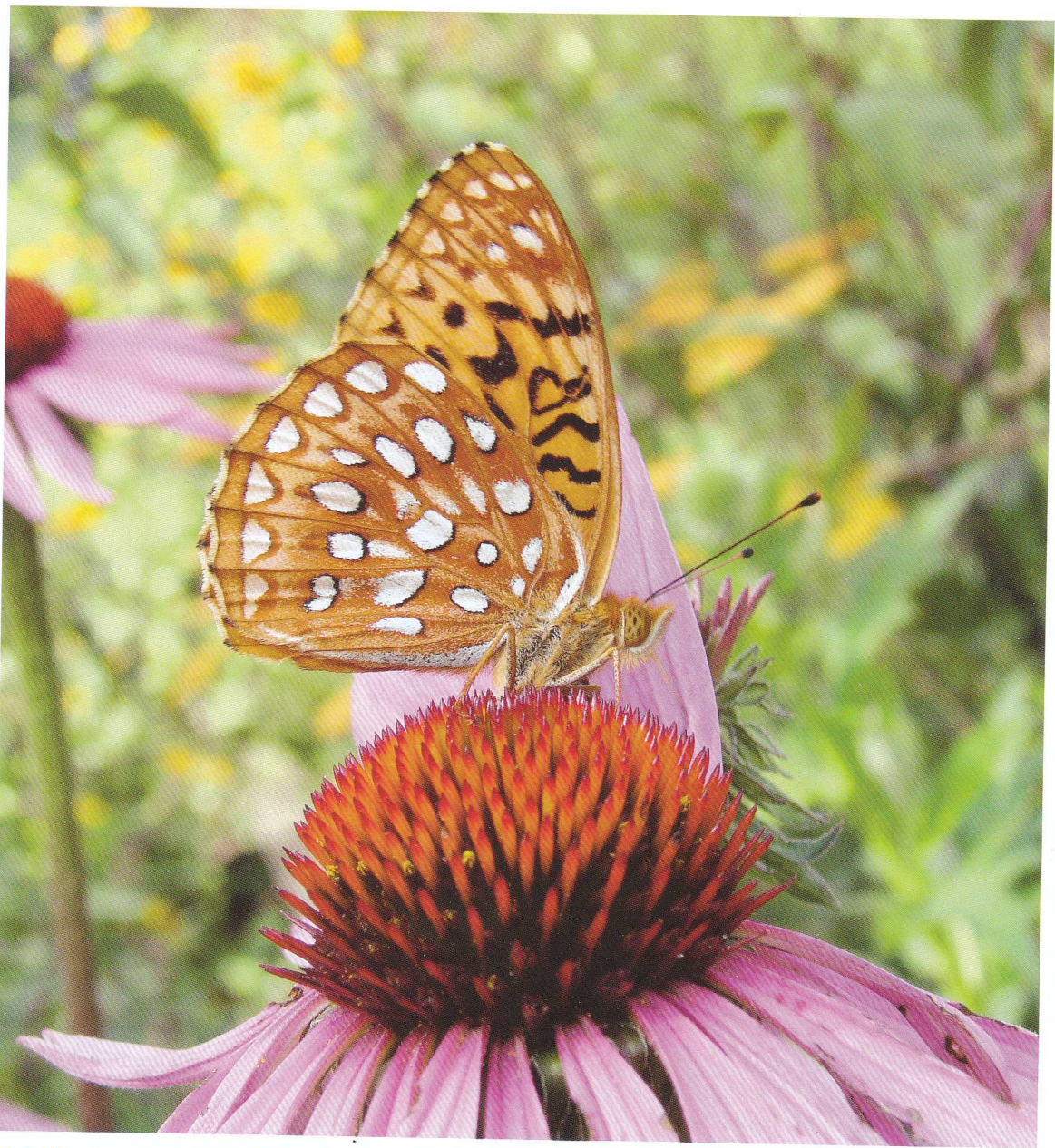
*Fields in Rhinebeck, Dutchess Co., NY. Aug. 15, 2008.*

# The Role of Agriculture:

*by Conrad Vispo*

in Hudson Valley  
Butterfly Conservation





*Fritillaries are some of the most conspicuous grassland/pasture butterflies. Here, an Aphrodite Fritillary nectars on a purple coneflower in a garden at a farm. July 4, 2010. Ghent, Columbia Co., NY.*

The Hudson Valley of New York has witnessed European-style agriculture for nearly 400 years, beginning with Dutch (and then English) wheat and subsistence farming; passing through sheep, hay, and rye; followed by commercial orchards and dairying. Most recently, directly-marketed niche farming has

been in ascendance with 'organic', 'local', 'pasture-raised', 'heirloom', and 'animal-friendly' being among the niches. Much of this evolution has been driven by the demands and tastes of New York City.

For most of those 400 years, much of the farming was 'grass-based', and there





*Above: A field rich in Little Bluestem and goldenrod illustrates potential habitat for some of our rare grass-skipper. September 6, 2013. Hillsdale, Columbia County, NY.*

*Left: In the East, Juniper Hairstreaks favor glades of Eastern Redcedar, a frequent invader of old pastures. Here, one nectars at a mountainmint. July 19, 2011. Stockport, Columbia Co., NY.*

were extensive hayfields and pastures. Up until about the 19th century, these were mainly on wet meadows and the forage was largely native plants. Subsequently, these 'grasslands' were moved to the uplands, a transition predicated on the extensive use of imported Eurasian forage plants. Of course,

neither wet meadows nor upland fields were solely occupied by true grasses, and numerous forbs were also part of these systems. Here in Columbia County, New York, along the western margin of Massachusetts, such 'grasslands' covered nearly half of the county in the mid 1800s; even today, they remain





*Bronze Copper Habitat: These permanent wild flower strips provided nectaring for abundant Bronze Coppers who apparently were flying in from adjacent wetlands. June 11, 2010. Chatham, Columbia County, NY.*

dominant, accounting for around 15% of the county's land, while cultivated fields (mostly corn and soybean) probably don't reach 5%.

Thus, in our setting, talking about the interaction of butterflies, agriculture and conservation resolves largely to talking about 'grassland' butterflies and the management of hayfields and pastures. Because few pesticides are normally applied to such fields in any case, the organic/inorganic distinction is not particularly relevant. This is not to say that pesticide application is irrelevant to insect conservation in general or even to butterfly conservation elsewhere; the concern about bees and cropfield pesticides is a case in point. Nor is the management of those relatively small cultivated areas in our region

unimportant for butterflies in those particular areas. For example, our only local Dion Skipper sighting and the densest population of Bronze Coppers that we have seen occur on an organic vegetable farm that is largely surrounded by wetlands and that laces wildflower strips between its production beds. That said, regionally, it is only in the case of hayfields and pastures that the crop itself (i.e., cattle forage) can potentially be managed as a caterpillar food source rather than just a nectar source for adults.

It is important to distinguish between worked farmland and farm-owned land. For example, many area farms own floodplains, wetlands and/or forestland. Those can be important lands for butterflies in their own



right, but they are not considered here, because they are not worked agricultural land.

A central conservation question around butterflies and agricultural land in this region thus becomes: what sorts of pastures and hay fields best support butterflies? As part of our studies to advise land management on natural areas formerly (and sometimes still partially) used for agriculture, we have explored openland butterfly communities in our area. In this work, based on more than 350 openland butterfly surveys, including many on active farms, we have tried to discern clusters of field butterfly species and associate them, in a general way, with field types.

Finer distinctions would no doubt be useful, but, in this preliminary work, we proposed five different butterfly communities (a sixth, associated with open, large stream margins, is not discussed here). These are not exclusive groups, and there is often co-occurrence and overlap. The relationships are correlational, not experimental — this is a summary of actual patterns seen.

Before summarizing these patterns, it's useful to give an overview of the butterflies we're talking about. For the most part, our on-farm butterflies are not the rarest of the rare. Some of our most unique habitats — rocky slopes and bogs, for example — are, almost by definition, non-agricultural habitats. With the demise of Regal Fritillaries and Tawny Crescents, agriculture may now have relatively little to do with the conservation of globally scarce species. However, most of our regional butterflies do occur on current or former agricultural land, and, for many, it is probably their primary landscape. These include relatively uncommon species such as Bronze Copper, Juniper Hairstreak, Meadow Fritillary, Baltimore Checkerspot, Aphrodite Fritillary, together with Leonard's, Cobweb and Indian Skippers.

Our first butterfly community, one found in many fields, are what we call 'The Visitors'. These are species, such as some of the hairstreaks and azures, together with the likes of Juvenal's Duskywing, Red-Spotted Purple,

Viceroy and Eastern Tiger Swallowtail, whose caterpillars feed on forest plants but who can regularly be seen in fields near forests. Field management may play a relatively minor role in the support of such species, at least in terms of their caterpillars. Adults, however, although usually less choosy, do need nectar. Presenting a diversity of flowers (since favored floral morphology can differ among species) across the season can help support both Visitors and residents.

Next come the butterflies of 'Intensively Managed Fields', such sites might include regularly seeded hayfields or intensively utilized pastures. These butterflies include some generalists (e.g., Cabbage White, Silver-spotted Skipper, and Clouded Sulphur) or species whose caterpillars feed upon widely cultivated plants such as Alfalfa (Orange Sulphur) or Crownvetch (Wild Indigo Duskywing), or widely-dispersed weeds such as Lambsquarters (Common Sootywing). Given current land use and the abundance of these species, little management for the conservation of these species seems necessary.

The butterflies of 'Old Fields and Mature Hayfields' form a third group. Such fields are more diverse than lawns or regularly re-seeded hayfields or pastures. The vegetation is often allowed to develop for at least part of the year before harvest; sometimes, it is not even cut yearly. Reflecting this increased plant diversity, there is an increased butterfly diversity. In such fields, we have picked up both species of ladies; numerous Pearl Crescents; Common Ringlet; Eastern Tailed-Blue; and grass-skippers such as Peck's, Dun, European, Hobomok, Delaware and Tawny-edged. This is also where we have most often seen fritillaries. This is the butterfly community most commonly assisted by management for grassland birds.

When shrubs start to make an entrance, we also see more Common Wood-Nymphs fluttering in and out of the shadows. Indeed, this group should probably be broken down into smaller groups favored by the presence of shrubs or by particular grasses





*The edges of ponds, even small ones, such as this lily pond, often harbor grass-skipper butterflies such as Least Skipper. July 4, 2006. Ghent, Columbia Co., NY.*

or sedges. Hobomok and Zabulon Skippers, for example, apparently like forest edges/shrubs for perching, and we have consistently found Juniper Hairstreaks in areas where Eastern Redcedar is encroaching on farmland. However, we have not found any of the true shrubland butterflies (e.g., those listed by Wagner in his Connecticut work) on farms.

The clear, if obvious, message is that permitting such fields to develop their plant diversity by not reseeding regularly and by allowing microhabitats (e.g., small wet spots) to persist can support an array of species. If fields are intended for hay use, then, if possible, rotational cutting might be suggested in which, say, half the field is cut one year and half the next. This would allow at least part of the resident caterpillar population to survive.

Sharon Stichter has presented a valuable detailed discussion of the management of such

fields on the NABA-Massachusetts's Butterfly Club's Butterfly Conservation web page, and includes additional recommendations such as a late-autumn cut at about 4-6" height. This might be ideal for openland conservation areas but might not be possible where at least some usable hay harvest is desired.

One of the primary steps of on-farm butterfly management is understanding what you have in a given field and then 'accentuating the positive'. That is particularly relevant here. For example, recently, we counted over 300 Meadow Fritillaries during a survey of a partially-cut Dutchess County hayfield; Great Spangleds were also relatively common and a few Variegateds even appeared. While there were ticktrefoils, White Clover and fleabanes in bloom relatively high off the ground; at least some parts of this site had a dense, ground-cover layer of Common





*This Northern Broken-Dash was found not far from the lily pond shown on the previous page. July 4, 2006. Ghent, Columbia Co., NY.*

Blue Violets beneath a relatively thin layer of higher herbs.

As Sharon Stichter has suggested and as these fields indicated, maintaining those violets (and hence, one hopes, those fritillaries) might require a regular cut above violet level, so that the violets were not shaded out by other species. The point is simply that rather than take some preconceived ideal as one's management goal, it is best to spend some time understanding a particular set of fields, their butterflies, and their existing management (something is working). Perhaps cautiously and respectfully, one can use the trial and error learning of adaptive management to try to work with and potentially improve what you have. To steal a line from the Ann Swengel's excellent management work, goal number one should be 'do no harm'.

We identified two other sets of butterfly species on on-farm 'grasslands': at the one end of the spectrum are the butterflies of 'Dry, Thin-soiled Fields and Openings'; at the other end, are the species of 'Wet Meadows'. On the former types of sites, one might find some of the floristic and butterfly elements naturally occurring in prairie-like situations, sand barrens and/or rocky hill tops. As my wife Claudia, the botanical branch of the family, has documented, lightly managed dry pastures and hayfields tend to be the agricultural uplands with the greatest diversity of native plants. European pasture grasses and forbs do best under moderately moist and rich conditions and out-compete many native plants in such situations; our native flora is better able to hold its own on these drier, more acidic, thinner-soiled sites. While greater rarities are possible at long-established



natural sites such as the nearby Albany Pine Bush (where 'Karner' Melissa Blues, Hoary Edges, and an array of native-grass skippers may be possible), our hayfields and lightly-grazed pastures with an abundance of Little Bluestem grass do sometimes support rarely-seen Leonard's, Indian and Cobweb Skippers. These are beautiful fields (see photo page 49): Lespedezas (bush clovers) and mountainmints add intriguing flowers to these lands and, in late summer, the bronzy Little Bluestem is often intermixed with a vivid display of goldenrods. The aesthetic appeal of such meadows can perhaps be played up, at least to owners of rural estates. More study of these fields is needed as even among suitable fields, the butterflies of this group seem patchy.

Relevant, although not strictly agricultural, is the role that native plant meadows, installed for landscaping purposes, can play in supporting these species. Native grasses often are a major component of such installations. One year of initial surveys found none of the just-mentioned butterfly species on such sites, although that might reflect limited surveys, lack of colonizers, and/or the regular use of pesticides in some landscaping situations.

In any case, maintaining existing Little Bluestem fields by not fertilizing, applying lime or reseeding would be recommended from a butterfly conservation perspective. Regular mowing, probably using some rotational schedule so as to preserve 'source' sections, would be appropriate. More intensive management is conceivable: under analogous situations in Great Britain, managers have even gone so far as to remove long-fertilized top soils and apply sulfur as a means of acidifying the soils.

Our last community of butterflies was those of Wet Meadows. Claudia's work has shown these areas to be hot beds of openland native plant diversity. We consider these wet meadows to be partial ecological analogies for fens or for the transitory but formerly more-common beaver meadows (i.e., the wet meadows that might follow beaver abandonment of a dam and pond). As such,

they will only persist if they are kept open. In such situations, we have seen browns, Baltimore Checkerspot, regular Bronze Coppers, numerous Least Skippers, and the occasional Black Dash and Mulberry Wing, among others. These butterflies may extend into unfarmed wetlands, but also occur in wet pastures or around the margins of lightly-grazed cattle ponds where grazing keeps down most brush and occasional cattle trampling has created a marshy area. Albeit outside of the Hudson Valley, Sharon Stichter's observations at Appleton Farm in eastern Massachusetts echo possibilities here: in the lightly-used wet meadows of that farm, she has documented an abundance not only of the above butterflies but also of the Silver-bordered Fritillaries.

Carefully managed grazing, such as might occur as part of a rotational grazing plan, can contribute to continued wet meadow openness and hence the persistence of our sedge-loving or, at least, wetland-plant-consuming caterpillars. Such light grazing, or maybe even brush hogging during dry periods every other year or so may be needed to keep such areas open. Preferably, only part of a site would be so treated during a given year to insure the persistence of butterfly refugia. In general, intensive farming should be kept at least 50-100' from such lands, both to maintain butterfly habitat and to create buffer strips that intercept sediments, nutrients and any agrochemicals. It may be worth distinguishing between the treatment of stream edges and wet meadows: woody plants along the former should probably be encouraged because of their contribution to bank stability, while herbaceous vegetation can be a target community for the management of the valuable wet meadow butterfly habitat.

Clearly, this paper talks less about focused rare species management and more about how we might maintain diverse butterfly communities in our landscape. In a landscape such as ours, the more unusual openland butterflies are regularly associated with uncultivated but not unused agricultural fields. However, they are probably most



common on the less productive lands (i.e., the older, scruffier hayfields; the wetter or drier pastures). To a certain degree, the relative diversity of butterflies in wet meadows or shrubby pastures reflects the intensity of management as much as any specific habitat traits. As land prices increase, our countryside is increasingly becoming one of tight 'either-ors': either this needs to be productive agricultural land (and hence is drained, reseeded, fertilized, etc) or it is residential or commercial and hence is built over, becomes lawn, or is allowed to revert to forest. We need to document and distinguish such 'nooks and crannies' of openland diversity in our increasingly controlled landscape so that we make what was once the ecologically-valuable messiness of what was once benign neglect a conscious component of our increasingly managed landscape.


The primary challenges of managing for butterflies on current or former farmland are probably ones of policy rather than ecology or management technique. The conundrum is the following:

- 1) The most ecologically valuable agricultural land in our region is probably marginal from a production standpoint.
- 2) To retain much of its current conservation value, such lands probably need to be kept open by periodic cutting or grazing.
- 3) The production value of such land might not compensate for the expense of such management.
- 4) Therefore, these lands mainly exist as temporary, transient patches that disappear as use either vanishes or intensifies.

Existing incentive programs for land management tend not to focus on these intermediate grounds where some level of management is required for highest ecological value to be maintained. Butterfly-loving land managers should, however, approach their local Natural Resources Conservation Services agents to see what help might be available. The situation is somewhat analogous to the challenge faced by grassland bird conservationists (i.e., how to justify

the maintenance of hay fields when the best cutting regime, from a conservation perspective, is not the best from an agro-economic perspective?); we are, however, discussing largely distinct habitats.

Conservation of butterflies is only going to work in the matrix of our landscape, as opposed to in isolated natural areas, when there is greater consciousness of what we have and a willingness on all sides to collaborate on management compromises that works economically and ecologically. Many of the farmers we have interacted with are eager to learn more about the non-production aspects of nature on their farms; we, as conservationists, need to demonstrate a similar willingness to understand the economic drivers of the farm business.

I would like to close by proposing a Butterfly Atlas for at least the central Hudson Valley, one that, while naturally including all habitats, does not ignore agricultural lands, including the smaller market garden farms which are now increasing. If habitat description and some degree of management history are included with such surveys, these data would give us a more complete baseline for understanding the butterfly/land use relations in our region. How, for example, do ecologically-valuable on-farm habitats differ across the Hudson Valley? Such an Atlas would also be an excuse to stimulate public interest by 'talking butterfly' with more people, a key step if we are to encourage the policy steps or landscaping tastes that may be needed for effective conservation of these species. 

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