

A Species to Watch: Harris' Checkerspot

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Many butterfly species rely on open, meadow areas which are created and maintained by human beings. In the parlance of ecologists, these are “cultural grasslands,” and because they are not entirely of natural origin, they may fall “under the radar” of those concerned with preserving natural ecosystems. However, if the meadows, fields and shrublands have not been plowed up or planted with non-natives in the past, they may contain many native plants today. This makes them fertile areas for butterflies. Pastures, whether active or abandoned, if not too heavily grazed, are prime examples. Another example is the extensive areas under power lines maintained by utility companies today.

Some of our meadow butterfly species which are most “at risk” depend particularly on the “wet meadow” portions of open areas. Two cases in point are Harris' Checkerspot and Silver-bordered Fritillary. As every good butterflyer knows, you head for the seasonally wet areas of the meadow to find these beauties, where their respective host plants, Flat-topped White Aster and Lance-leaved Violet, grow. You might think that our wetlands laws would protect their habitat from development. But these two host plants in particular are not true wetland species; they grow in the moist areas in-between uplands and wetlands, which may fall outside a strict definition of wetland. For a variety of reasons, Massachusetts has lost many acres of “wet meadow” over the years to suburbs and shopping malls.

There is reason to be concerned about the status of Harris' Checkerspot in Massachusetts. Connecticut was formerly the

southern limit of Harris' Checkerspot range in New England states. (A range map for Harris' may be found in Cech, 2005). However, as a result of the Connecticut Butterfly Atlas Project, the Natural Heritage Program status of this species in Connecticut has recently been changed to S1, or "critically imperiled" (NatureServe, 2007). Although there were 49 pre-Atlas records from 16 towns in Connecticut, there were *only two* Harris' Checkerspots found in the intensive surveys of the 1995-1999 Atlas period. And *none* have been found since. The most recently known population was under the Sherman's Corner powerline near Chaplin. (Connecticut Butterfly Atlas, 2007, pp. 238-9, 293, 303, 339.) If Harris' Checkerspot is indeed lost from Connecticut, Massachusetts could be next. The species' NatureServe ranking in Massachusetts is S3, or "vulnerable." This is in part because, unlike some other butterfly species, Harris' has only one documented host plant.

The 1986-1992 Massachusetts Butterfly Atlas found Harris' Checkerspot in only 24 of the 723 blocks covered, making it "locally uncommon" in our state (Choiniere, 2006). Most records were found in central and northeastern Massachusetts; the species is generally absent from the southeastern counties, Cape Cod and the Islands (although there is one 1998 record by Mark Mello from New Bedford). Since 1992, Massachusetts Butterfly Club members have found Harris' in approximately 35 locations, many different from those counted for the Atlas, but also mostly in central and northeastern Massachusetts. Some of the main sites for Harris' in recent years have been Tully Dam in Athol/Royalston; a field in Easton; WTAG Towers in Holden; Barre Falls Dam in Hubbardston; Milford power lines; New Salem; Martin Burns Wildlife Management Area in Newbury; North Common Meadow in Petersham; Wachusett Meadow Wildlife Sanctuary in Princeton; and Broad Meadow Brook Wildlife Sanctuary in Worcester.

A recent review of Massachusetts Butterfly Club [MBC] sighting records for nine species of wetland-associated butterflies showed that Harris' Checkerspot was the *only* species to exhibit a clear pattern of decline between 1991 and 2007.* There was decline in total number of reported individuals (Chart I), and in number of individuals adjusted for total number of reports of all species (that is, for the amount of effort we expended that year) (Chart II). The number of reports of Harris' fluctuated between four and twenty-three over these seventeen years, but did not show any pattern of decline. However, the average number of Harris' butterfly individuals per report did show a decline.

The startling pattern shown in these charts is due almost wholly to the situation at the WTAG towers site in Holden. There, back in the early 1990's, a very large colony of Harris' Checkerspots flourished, reported on frequently by Tom and Cathy Dodd and others. The highest counts were 162 in 1992 (on 6/20); 178 in 1993 (on 6/19); and 200 in 1995 (on 6/18). By 1999 the high count had dropped to 37 on 6/13, and the last report from 2002 by Tony Moore found only 20 on 6/10. The decline seems to have been due to butterfly-unfriendly mowing practices.

The second largest and most well-represented colony in the MBC data is at Mass Audubon's Broad Meadow Brook Sanctuary in Worcester. As Martha Gach reports in the preceding article, this colony is presently being carefully cared for through biannual mowing, and appears to be doing very well. It had some ups and downs in earlier years.

The third most well-documented Harris' colony in the MBC data is at the 1550-acre Martin Burns Wildlife Management Area in Newbury. As at Broad Meadow Brook, this area is undergoing some drastic but needed wildlife management this year. The

Massachusetts Division of Fisheries and Wildlife, under its Upland Habitat Management Program, has begun mowing, brush-cutting and clearing some 130 acres here, to return it to meadow and shrubland. This Wildlife Management Area is very rich in native plant and animal species. Prior to its acquisition by the state in the late 1950s, the land was used mostly for pasture and timber cutting, rather than active agriculture. Fish and Wildlife did plow and plant some non-native “wildlife” plants, such as autumn olive, between 1957 and 1970. This was considered good wildlife management at the time, but now these invasives need to be removed. In addition, by 2005 trees and saplings were filling in many formerly open areas, and wet meadows were growing in with shrubs. By returning many acres to an early successional state, Mass Wildlife expects that habitat for many species of open area birds, in particular Black-Billed Cuckoo and Prairie Warbler, will be improved (Liske-Clark, 2006). The effort should also benefit many butterfly species.

What impact the drastic brush and tree cutting will have on the Harris’ Checkerspot population at Martin Burns is still unknown. The yearly high counts at this site show a small to medium-sized population, which has persisted over the twelve-year period 1996-2007 with no decline but some yearly fluctuations, particularly a low in 2002. At Martin Burns, the rocky and sometimes sandy upland areas are criss-crossed by small streams and scattered wetlands and wet meadows. The Flat-topped White Aster is distributed in small patches near some of the open wetlands; thus the Harris’ Checkerspot is also found in several different areas, perhaps functioning as a meta-population. It appears that almost all of these areas have been targeted by the mowing that has been done this winter of 2007-8. This summer will be critical in revealing how well the Harris’ population survives. It is not known whether specific monitoring for this butterfly species is

planned by Mass Wildlife, so it is hoped that Massachusetts Butterfly Club members will make a special effort to include Martin Burns in their field trips this year, and will post their counts.



A Communal Lifestyle -- Harris' Checkerspot larval web
Photo: Alyce Mayo, Royalston, 2001

Chart I

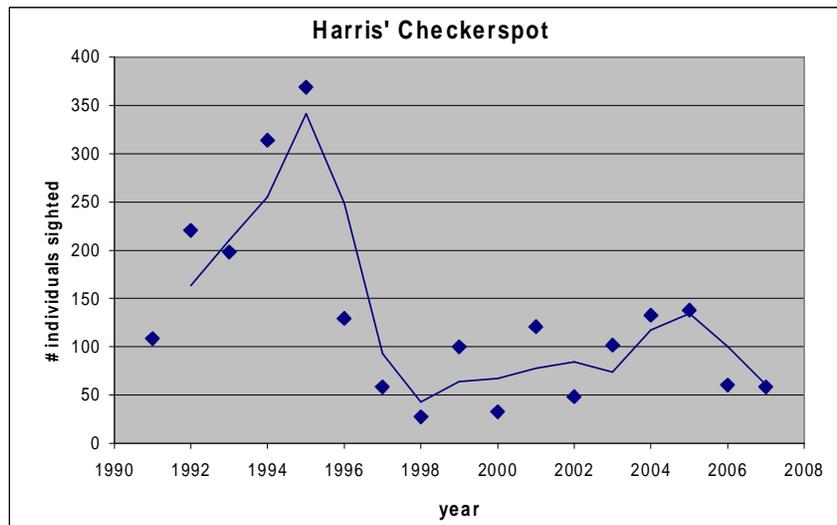
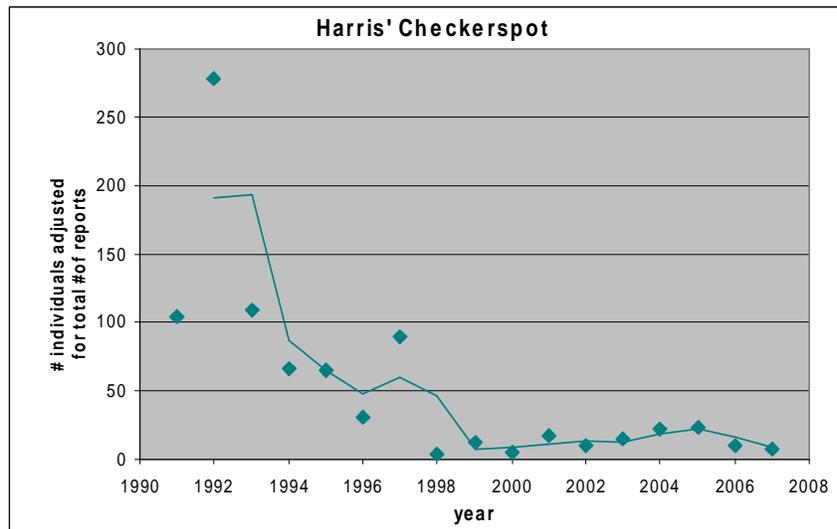


Chart II



Charts produced by Lynette Leka

Notes and Sources:

Cech, R. B., and G. Tudor, 2005. *Butterflies of the East Coast: An Observer's Guide*. Princeton: Princeton University Press.

Choiniere, J. 2006. "Harris' Checkerspot," species account, *Massachusetts Butterfly Atlas*. www.massaudubon.org/butterflyatlas

Connecticut Butterfly Atlas. 2007. Jane E. O'Donnell, Lawrence F. Gall, and David L. Wagner, Eds. Connecticut State Geological and Natural History Survey, Hartford. The Connecticut Butterfly Atlas Project also found that 22 of the states 98 resident butterfly species, or almost one-quarter, were at risk, with state Natural Heritage rankings (S1 or S2) indicating the need for conservation action. These 22 included Bronze Copper, Bog Copper, and Eyed Brown. In addition to the "top 22," other grassland and meadow species which Atlas records indicated may be in decline in Connecticut are Cobweb Skipper, Silver-bordered Fritillary, Meadow Fritillary, and Baltimore Checkerspot. Dave Wagner's chapter on Butterfly Conservation in this Atlas volume (pp. 289-309) is highly recommended. It stresses the importance of on-going butterfly monitoring.

Liske-Clark, Jill. 2006. Massachusetts Division of Fisheries and Wildlife, *Site Plan: Martin Burns WMA, Newbury*, draft, December 2006.

NatureServe 2007. <http://www.natureserve.org/explorer> National and sub-national conservation status definitions and rankings.

*The other species were Bronze Copper, Bog Copper, Silver-bordered Fritillary, Baltimore Checkerspot, Eyed Brown, Appalachian Brown, Mulberry Wing, and Broad-winged Skipper. None of these showed a pattern of decline in MBC sightings over these years.