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NOTES

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OBSERVATIONS ON MILKWEEDS AND MONARCH BUTTERFLIES IN AN OLD FIELD HABITAT IN NORTHERN VIRGINIA DURING THE SUMMER OF 2013

John Alcock and Lincoln P. Brower

School of Life Sciences, Arizona State University, Tempe, AZ 85287-4501; Department of Biology, Sweet Briar College, Sweet Briar, VA, 24595 USA
(brower@sbc.edu)

The eastern population of the monarch butterfly (*Danaus plexippus* L.) is of conservation concern given the current precipitous decline of the species in its Mexican overwintering sites and the destruction of the monarchs' milkweed foodplants in North America (Brower *et al.*, 2012; Rendón-Salinas and G. Tavera-Alonso, 2013). The causes of this decline are multiple, with a major contributing factor the increasing application of powerful herbicides on agricultural corn and soybean crops which have been genetically modified to be herbicide resistant. This has greatly reduced the abundance of the more than 100 North American *Asclepias* milkweeds (Woodson, 1954; Rassman and Agrawal, 2011), especially *A. syriaca* L., which were abundant wildflowers in Midwestern and Eastern farm fields (Betz, 1989; Malcolm, Cockrell and Brower, 1993; Pleasants and Oberhauser, 2012). Milkweeds provide monarchs with abundant oviposition sites and also are a major source of nectar for the adult butterflies. It is therefore of interest to examine the response of monarchs to locations that remain free of herbicides and rich in milkweeds.

One such site, located on the Piedmont in northeastern

Virginia, is an abandoned, approximately 2.7 hectare farm field located near Marshall, Fauquier County, Virginia. The coordinates of the field near its center are 38°52'30" N and 77°54'35" W and its elevation at that point is 569 feet. The field was grazed by cattle as recently as 2006 but has remained fallow since then (Fig. 1). It currently is densely covered in vegetation, including blackberry brambles (*Rubus allegheniensis* Porter), immature maple trees (*Acer* sp.) rarely more than a meter tall, some larger invasive Russian olives (*Elaeagnus angustifolia* L.), various grasses, and many other small weeds.

Here one of us (JA) encountered a large and dense patch of *A. syriaca* (already a meter or so tall) on June 8, 2013 (Fig. 2). Although the milkweeds had barely begun to flower, they produced many inflorescences by June 15. Flowering continued through July 8, but by mid-July the plants were mainly in pod. JA visited the site, generally for less than 30 min, on 20 dates through August 4 to see whether monarch adults were utilizing the milkweeds either for nectar or for oviposition. Although tiger swallowtails (*Papilio glaucus* L.) and great spangled fritillaries (*Speyeria cybele* Fab.) were



Fig. 1. The old field habitat on the farm site, 26 July 2013.



Fig. 2. Dense patch of *Asclepias syriaca* in full bloom in the old field on 24 June 2013. No immature monarchs were ever found on the plants.



Fig. 3. Fourth instar monarch larva feeding on *Asclepias viridiflora* on 24 July 2013. Six other individuals of this rare North American milkweed were found in the old field.



Fig. 4. Two specimens of *Asclepias incarnata* were found in the old field on 26 and 28 July but no monarch larvae were present and no leaf damage had occurred on these plants through 4 August 2013.

often nectaring on the milkweeds when they were in flower, not a single adult or larval monarch was seen either at the main patch of *A. syriaca* or at the several subsidiary populations of this plant in the same field. This result applied even though a few monarch adults (never more than four in any given day) were seen flying across unmowed fields elsewhere on the farm,



Fig. 5. *Asclepias tuberosa* was also found in flower in the old field on 26 July but no monarch larvae were found on that day or three others through 4 August 2013.

especially after July 21. The milkweeds were not inspected for eggs.

On July 24 a single 4th instar monarch caterpillar was seen and photographed on a different milkweed (*A. viridifolia* Raf., Fig. 3) growing in the same field. The larva was seen on the same plant through July 28 but not on July 29. Herbivorous damage to the plant was small. An extensive search found six other individual *viridifolia* plants, scattered in the field. None of these hosted monarch immatures. This milkweed is uncommon (S. B. Malcolm, personal communication) even though it ranges widely from the eastern Piedmont of New York to Georgia, westwards to Montana and southward into northern Mexico (Woodson, 1954). The only other record of monarchs using it as a foodplant was made in Ore City, Upshur County, Texas in April-May, 1985 (Lynch and Martin, 1993). Also growing in the Virginia field at this time were two swamp milkweeds (*A. incarnata* L., Fig. 4) and one butterfly weed (*A. tuberosa* L., Fig. 5), both free of monarch immatures. As of late July, although no *A. syriaca* were still in flower, the other three milkweed species were flowering and they continued to do so through 5 August.

The fact that four milkweed species currently occupy

the old farm field speaks to the resilience of the genus in areas free from herbicides. The fact that immatures were so sparse is likely due to the all-time low of monarchs in the eastern North American population during the 2013 spring and summer season (Howard, 2013; Monarch Watch, 2013). We wonder whether the monarch population has become so diminished that too few females were available to take advantage of the milkweeds in this old field habitat. If true, the recovery of monarchs may be slow or may not occur at all.

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WINNERS OF THE 2013 ATL/MCGUIRE CENTER PHOTO CONTEST



WINNERS OF THE 2013 ATL/MCGUIRE CENTER PHOTO CONTEST: Page 3, Butterflies: (A) *Mimoides pausanias pausanias* (Papilionidae) and other butterflies puddling, Colombia, ©Fredy Montero; (B) *Parnassius apollo* (Papilionidae), Russia, ©Alexandr Chuvilin; (C) *Hamadryas epinome* (Nymphalidae), Brazil ©Roberto Rezende Greve; (D) *Lamproptera curius* (Papilionidae), Vietnam, ©Nancy Turner; Page 4, Immatures: (E) *Hemeroplanes ornatus* (Sphingidae), Colombia, ©Fredy Montero; (F) *Papilio machaon* (Papilionidae), Russia, ©Alexandr Chuvilin; (G) Limacodidae sp., Brazil ©Roberto Rezende Greve; Moths: (H) *Cyanopepla jucunda* (Arctiidae), Brazil ©Roberto Rezende Greve; (I) *Phyllodesma tremulifolia* (Lasiocampidae), Russia, ©Alexandr Chuvilin.