

**Data from: Habitat type influences *Danaus plexippus* (Lepidoptera: Nymphalidae) oviposition and egg survival on *Asclepias syriaca* (Gentianales: Apocynaceae)**

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#### Abstract

As agricultural practices intensify, species once common in agricultural landscapes are declining in abundance. One such species is the monarch butterfly (*Danaus plexippus* L.), whose eastern North American population has decreased approximately 80% during the past 20 years. One hypothesis explaining the monarch's decline is reduced breeding habitat via loss of common milkweed (*Asclepias syriaca* L.) from agricultural landscapes in the north central United States due to adoption of herbicide tolerant row crops. Current efforts to enhance monarch breeding habitat primarily involve restoring milkweed in perennial grasslands. However, prior surveys found fewer monarch eggs on common milkweed in grassland versus crop habitats, indicating potential preference for oviposition in row crop habitats, or alternately, greater egg loss to predation in grasslands. We tested these alternative mechanisms by measuring oviposition and egg predation on potted *A. syriaca* host plants. Our study revealed that habitat context influences both monarch oviposition preference and egg predation rates, and that these patterns vary by year. We found higher monarch egg predation rates during the first 24 h after exposure and that much of the predation occurs at night. Overall we documented up to 90% egg mortality over 72 h in perennial grasslands, while predation rates in corn were lower (10–30% mortality) and more consistent between years. These findings demonstrate that weekly monarch egg surveys are too infrequent to distinguish oviposition habitat preferences from losses due to egg predation and suggest that monarch restoration efforts need to provide both attractive and safe habitats for monarch reproduction.

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