

RESEARCH ARTICLE

Monarch butterfly host plant (milkweed *Asclepias* spp.) abundance varies by habitat type across 98 prairies

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The decline in migratory monarch butterflies (*Danaus plexippus*) over the past 20 years has been attributed to several drivers, including loss of their host plants (milkweeds *Asclepias* spp.). This has sparked widespread interest in milkweed ecology and restoration. We developed a model on environmental and habitat-type variables to predict milkweed abundance by sampling 93 prairie plantings (47 conservation plantings and 46 roadsides) and 5 unplowed prairie remnants throughout the state of Iowa, United States. Milkweeds were censused in 10–25 random locations within each site, and data on plant diversity, age of planting, soil characteristics, and management were tested as predictors of abundance. Milkweed densities of all species combined were highest in remnant prairies (8,705 stems/ha), intermediate in roadside plantings (1,274 stems/ha), and lowest in conservation plantings (212 stems/ha). Most milkweeds were common milkweeds *Asclepias syriaca*, which were more abundant in roadside than conservation plantings. Remnants contained the most milkweed species. Total milkweed and common milkweed abundance were both predicted by higher soil pH, a more linear site shape, and lower soil bulk density across restorations. Our results indicate that common milkweed is maintained by disturbance, and establishes readily in rural roadside habitat. Remnants are important as reservoirs for multiple milkweed species and should be protected.