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Signs of the Seasons Program Species in Focus: Monarchs and Milkweed, an Ecological Relationship Threatened by Climate Change

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SIGNS *of the* SEASONS

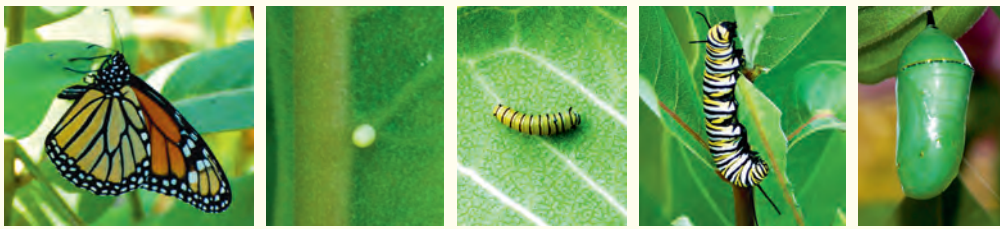
A NEW ENGLAND PHENOLOGY PROGRAM

Phenology is the study of the timing of cyclical life events, such as animal migration and reproduction, and plant leafing, blooming, and fruiting. Phenology is tightly linked to seasonal changes in temperature and precipitation patterns, which makes it one of the most sensitive indicators of global climate change, and one of the few ways to understand how global-scale changes are affecting plants, animals, and people locally. By observing and recording phenology in their own backyards and communities, Signs of the Seasons volunteers help scientists, resource managers, and others document, understand, and predict changes that affect Maine's environment, economy, and cultural heritage.

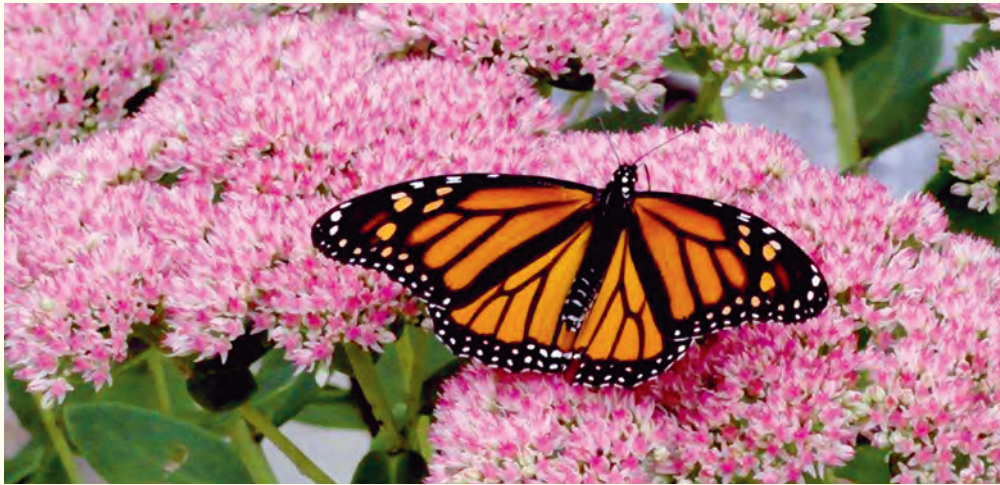
SPECIES IN FOCUS

Monarchs and Milkweed – An Ecological Relationship Threatened by Climate Change

Like most organisms, including humans, monarch butterflies depend on other species for their survival. Monarch caterpillars feed exclusively on milkweed, so the plants must be available when they hatch. Many different species of milkweed sustain monarchs as they migrate throughout their range from central Mexico to southern Canada.



Over the past two decades, researchers have observed declines in populations of both monarchs (over 70% in some areas) and milkweed. Climate-related factors contributing to these declines include increasing frequency of intense winter storms and near-freezing temperatures in monarch overwintering areas in Mexico, and severe droughts in the southwestern and southeastern United States, which affect both species. If these trends continue, they could create a mismatch in time or space between monarch breeding cycles along their northward migration (April to August) and the growth and survival of milkweed plants eaten by monarch caterpillars. Other factors that affect monarch populations include habitat loss due to deforestation in the overwintering areas of Mexico, and agricultural pesticides and mowing practices that have reduced abundance of milkweed plants throughout Central and North America.



Signs of the Seasons volunteers can help!

- Sign up for a Signs of the Seasons training workshop to learn how to observe and record phenology data for monarchs and milkweed plants in your backyard or community.
- Plant or preserve milkweed in your yard.
- Plant your own butterfly garden.
- Contact your local school or municipality to encourage them to preserve (or plant!) milkweed in schoolyards or public parks.
- Spread the word about the importance of milkweed to friends and family.

umaine.edu/signs-of-the-seasons



PROGRAM PARTNERS

- USA National Phenology Network
- Acadia National Park
- Schoodic Education and Research Center
- US Fish and Wildlife Service
- Maine Maritime Academy
- Maine Audubon
- Coastal Maine Botanical Gardens
- Climate scientists and educators at the University of Maine

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Design — Kathlyn Tenga-González, Maine Sea Grant; Photos — metamorphosis: EduPics; monarch on milkweed: Ethel Dyer; sky, butterflies: Shutterstock

