

Earlier Springs

In addition to spring getting warmer, it arrives earlier than it used to.



Apple trees, grape vines, and lilacs in the northeast U.S. are blooming two to eight days earlier than they did in the 1960s,¹ consistent with earlier warming in springtime.



Fox Sparrow
Photo: Alex Galt, US Fish and Wildlife Service

Many birds that spend the winter in the southern U.S. and migrate through New York State in the spring—such as the fox sparrow—are arriving about a week earlier than they did in the late 1960s.²

The same study that found this result also found that birds with longer migration routes (ones that winter in Central and South America) have not been able to adjust their migration timing to changes in climate. This is because these long-distance migratory birds tend to use changing day length, not temperature, as the signal to migrate.

¹ Wolfe, DW et al., Int J Biometeorol. 2005, 49(5):303-9

² DeLeon, RL, EE DeLeon, GR Rising, The Condor, 2011,113(4), 915-923

Ecological Mismatch

Timing is an important part of the relationship between birds, insects, and flowering plants. Migratory birds time their arrival at their spring breeding grounds so that when their young hatch, there is an abundant supply of caterpillars to feed the nestlings. Insect activity coincides with plant flowering so as to maximize food sources (nectar and pollen) for insects, and also pollination for plant reproduction.

When climate change alters the timing of these events differently for different organisms, the resulting mismatch can disrupt animal and plant life. A study³ found that from 2001 to 2012, both “green-up” dates (when plants begin to leaf out) and migrating songbirds arrived earlier than in the past, but at increasingly mismatched rates. In eastern U.S. forests, birds arrived after green-up began, and the timing mismatch increased by over half a day per year.

The study of the timing of events in plant and animal life is called **phenology**. You can participate in a tree phenology citizen science project at the Cayuga Nature Center, through the Nature’s Notebook project of the U.S.A. National Phenology Network (usanpn.org).

Sugar Maples and Maple Syrup

Maple syrup producers tap sugar maple trees when nighttime temperatures are below freezing and daytime temperatures are in the 40s (°F). Traditionally, maple sugaring season in Central New York has started in late winter to early spring, but as our climate changes this season is projected to shift, starting 15 to 30 days earlier than the 20th century baseline by the end of the 21st century.



³ Mayor, SJ et al., 2017, Scientific Reports 7, Article number: 1902

What can I do to help New York's native wildlife and plants?

Help them adapt by preserving and creating healthy habitats. Animals and plants are stressed by climate change, pollution, competition from invasives, and loss of habitat. We can support them by protecting where they live and what they eat.

Don't introduce invasive species! Don't move firewood—it can contain invasive insects that kill our trees.

You can help to reduce future climate change by using less energy, and by reducing use of fossil fuels: natural gas, oil, and coal. Fossil fuel burning is the main source of carbon dioxide in the atmosphere, which warms the planet.

Plant native plants. Some animals can only feed on native plants, like monarch butterfly caterpillars, which can only eat milkweed.

Migrating and nesting birds need insects—especially caterpillars—to feed their young. The best trees to support lots of native caterpillars are native willows, oaks, cherries, and poplars.

Native plant information:

Tompkins County Cooperative Extension Native Plants: <http://cctompkins.org/gardening/lawns-ornamentals/native-plants>

Audubon Native Plants Database: <https://www.audubon.org/native-plants>

Lady Bird Johnson Wildflower Center Plant Lists & Collections: <https://www.wildflower.org/collections/>



CAYUGA NATURE CENTER

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Cayuga Nature Center is a public educational venue of
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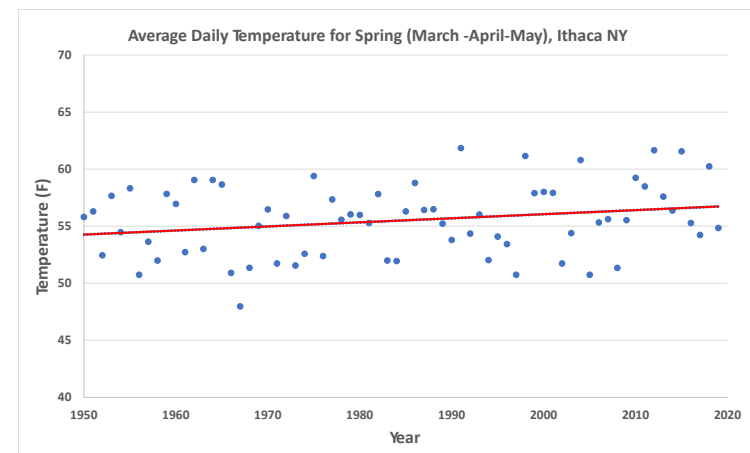
How is climate change affecting Central New York's plants and animals in spring?



Sugar Maple leaves opening in spring at the Cayuga Nature Center

Central New York springs are getting warmer. Since 1950, average daily temperatures in spring have increased at a rate of about 0.4°F per decade. That adds up to about a 3°F total increase over the past 70 years.

While this may not seem like a lot, natural systems can be sensitive to small changes in temperature. Brook trout, for example, do best at water temperatures from 55-60°F, and they can survive at 72°F but will not live more than a few hours at 75°F.



Data: New York Climate Change Science Clearinghouse