Thoreau's study of birds at Waldon Pond aids biologists in climate change research

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Boston University biology professor Richard Primack, graduate student Elizabeth Ellwood, and recent graduate Michelle Talmadge completed an analysis of the changing arrival dates of migratory birds to Concord, Massachusetts that includes observations by Henry David Thoreau from the 1850's. This research builds on earlier work by Primack and his students showing plants in Concord respond rapidly to temperature and are now flowering 10 days earlier than in the time of Thoreau.

Thoreau's records and subsequent observations up to the present of bird arrival times around Walden Pond are being used to study the effects of global climate change. In a soon to be published article in the journal *Condor*, Primack and Ellwood show that some birds, such as the Yellow-rumped Warbler and Chipping Sparrow, are arriving earlier in warmer years and later in cold years. This study is particularly significant as it represents the longest time span over which bird arrival times have been scientifically observed.

The study indicates that Concord birds are not responding to warming temperatures as fast as plants, and that they may miss the peak abundance of insect food in the spring, if insects are also responding as rapidly as plants. The concern here is that birds may not find enough insects to feed their hungry nestlings, and the baby birds will starve to death. "Insect are the missing link between plants and birds and this is the next area of focus in our lab," said Ellwood.

More information: Ellwood, E., R. B. Primack, and M. Talmadge.

2010. Effects of climate change on spring bird arrival times in Thoreau's Concord from 1851 to 2007. *Condor* 112: 754-762.

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