Climate change forces early spring

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Spring is hailed as the season of rebirth, but if it comes too early, it can threaten the plants it is meant to welcome.

A University of Alberta study shows that climate change over the past 70 years has pushed some of the province's native wildflowers and trees into earlier blooming times, making them more vulnerable to damaging frosts, and ultimately, threatening reproduction.

U of A PhD candidate Elisabeth Beaubien and her supervisor, professor Andreas Hamann of the Department of Renewable Resources, studied the life cycle of central Alberta spring blooms, spanning 1936 to 2006, evaluating climate trends and the corresponding changes in bloom times for seven plant species.

Using thermal time models, the researchers found that the bloom dates for early spring species such as prairie crocuses and aspen trees had advanced by two weeks over the stretch of seven decades, with later-blooming species such as saskatoon and chokecherry bushes being pushed ahead by up to six days. The average winter monthly temperature increased considerably over 70 years, with the greatest change noted in February, which warmed by 5.3 degrees Celsius.

The study, funded by grants from NSERC and Alberta Ingenuity, appears in the July issue of *Bioscience*.

A second related study, published in the International Journal of Biometeorology, describes the development of the Alberta and Canada

PlantWatch programs, which coordinate networks of citizen scientists who track spring development timing for common plants.

In gathering their data, Beaubien and Hamann built on a network of information about phenology—the study of the timing of life cycle events—that was started in 1936 by the federal agriculture department and has since been supplemented by the collaborative efforts of university biologists, government researchers and more than 650 volunteers from the general public.

Provided by University of Alberta