



Thanks to the many Albertans who reported flowering and leafing dates during the growing season of 2012! Snow cover was scant over the winter of 2011-2012 for much of the province except the mountains. The months of April to June were somewhat cooler than average: see Alberta Agriculture Weather maps at <http://agriculture.alberta.ca/acis/climate-maps.jsp>.

After a winter of very little protective snow, frost depths in central Alberta were reported to be deep in the spring of 2012, and the timing of prairie crocus flowering seemed late. In most years, first pollen shed from poplar and first blooms on prairie crocus are about two days apart, but the gap was wider last spring. Trees bloom and leaf out in response to temperatures at the height of their branches, while prairie crocus's spring growth responds to the soil temperature.

In early spring 2012 in the Edmonton area, other botanists and I could find no male pollen cones on white spruce: this usually means that few female seed cones are formed. This lack of reproduction may have been partly influenced by good moisture the previous (2011) June and July, which meant the trees were in better condition. We seem to get 'masting' years (that is, years when most spruce produce abundant pollen and seeds) after the trees have experienced a drier than usual growing season.

Dr. Charles Bird founded the original phenology survey in Alberta which later became PlantWatch. From 1973 to 1982 he asked volunteer naturalists to track wildflower first bloom dates. An expert in many fields of natural history, he wrote the book "Alberta Butterflies". He said in June 2012: "More monarch butterflies have been seen in the province than in any previous year in living memory. Their usual food plant is showy milkweed which is scarce in Alberta occurring in a few places along southern river valleys. Farther north, the butterflies lay eggs on low milkweed".



Monarch butterfly (*Danaus plexippus*) on a late lilac (by Charles Bird)



Monarch caterpillar on low milkweed at JJ Collett natural area, 14 Jul 2012 (by Charles Bird)

The spring phenology data that over 650 Albertans have reported over the last 26 years is helping us understand the effects of warming temperatures. My thesis analyzing this data is now posted at <http://hdl.handle.net/10402/era.30078>. It shows the effects of climate warming in central Alberta on plant bloom times, analyses how the city 'heat island' affects temperatures and plant responses, and explores the effectiveness of this citizen science program.

**"POPCLOCK": would you like to contribute data?**

Could you watch a balsam poplar tree this spring or next spring? I have added this species to the data sheet, to assist a new program called PopClock (see <https://www.usanpn.org/nn/popclock>). It partners scientists with the public throughout the US and Canada to study climate change impacts on Balsam poplar and Quaking aspen (Aspen poplar). You may wish to also report data to their 'nature's notebook' and I would be delighted to learn your impressions of their method to describe growth stages. Balsam poplar sheds its pollen about a week or more after aspen. Please use the same definitions of 'first bloom, mid bloom and leafing' as those for

aspen. These are “First bloom: when the catkins on the male tree first start shedding pollen (3-places); mid bloom: when 50% of the male catkins have lengthened and shed pollen; and leafing: when the first leaves



Male Balsam poplar catkin before pollen shed. By Linda Kershaw. (*please report on male trees, ie these catkins*)

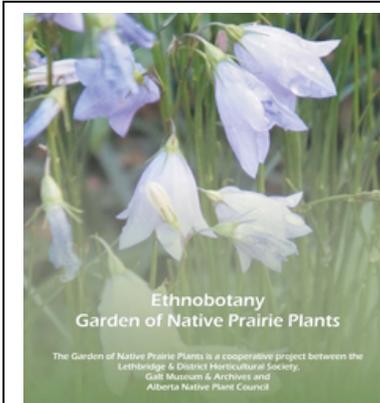
have emerged and unfolded completely (in three different places on the tree). See aspen described at [http://www.naturewatch.ca/english/plantwatch/species\\_details.asp?species=1](http://www.naturewatch.ca/english/plantwatch/species_details.asp?species=1)

### Phenology: a way of seeing the earth

In this colourful two minute video (<http://climatewisconsin.org/story/phenology>) Nina Leopold Bradley describes the value and enjoyment of tracking the timing of events. Her family’s Wisconsin records show that many spring birds are now arriving earlier, and plants are blooming earlier. Nina notes “the fact that you keep records, all of a sudden changes the way you see the natural systems around you”, and quotes her phenologist father Aldo Leopold: “keeping records enhances the pleasure of the search and the chance of finding order and meaning in these events”.



Just for comparison, female balsam poplar catkins (by Darryl Welk)



### Ethnobotany of the Plants in the Garden of Native Prairie Plants, 2012, by Penny Dodd

This 75-page book describes the plants in the Galt Museum garden in Lethbridge, Alberta, along with their uses by First Nations people.

<http://www.galtmuseum.com/visitors-grounds.htm>

free download

## COMMENTS FROM PLANTWATCH OBSERVERS

### NORTHERN ALBERTA

**High Level:** April 20: first frost free night (and black bear sighting). Very dry until early July and then 5 inches rain in 36 hours. Ample rain after, but many very hot days (39 degrees). No saskatoon berries as too dry, strawberry flowers just dried up, though did see blossoms later in September (W.Askin).

**Wembley:** saskatoon blooms numerous, but few berries (though berries abundant a few miles away). Lots of spiders and mites (H. Hrychiw).

**Beaverlodge:** slightly below seasonal temps this spring, lots of wind. Saskatoon: nice blossoms with no evidence of insects (ie lygus bugs eating flowers)(J. Drabble).

**Lac la Biche:** scant snow cover during winter plus freezing rain and a cold spring – possible reason why numbers of pollinating insects and wild bees were low all summer? (E. Creelman).

**Bon Accord:** Tundra swans in our wetland for over a week. Tree swallows returned exactly the same day as last year (April 28). June 9: monarch butterfly feeding on common lilac flowers in our yard! (B.Collier).

**St Paul:** terrific summer - great growing conditions, the wild roses amazing, lots of rose hips for grouse in winter. Wild saskatoon berries disappointing. Still no frost by September 25 = a first in the last 35 years (V. Hudson).

## **CENTRAL ALBERTA**

**Onoway:** Snow stayed at higher elevations on north slopes in the Glory Hills until the end of April. Pincherries in full blossom around 25 May (later than usual), many bees, but no cherries (D. Downing).

**Leduc area.** Aspen: pollen slow falling. Rain and snow on 14, 15, 16 April, dry on 17 April. Birch pollen is more difficult to see than aspen pollen. Lots of berries again with all the recent rain, but very few spruce cones again (T. Abbott). Very nice "spring", trees look terrific, have an abundance of bees. As a result of the dry years, many poplar trees died and last winter several blew down. This year the spruce trees have hardly any cones; the past two or three years they have been loaded down. Saskatoons were very unusual, one small grove bountiful, juicy, but some bushes only a few yards away, small, dry and shriveled. Mountain ash trees covered with berries and some branches started re-blooming in late August (B. Bolton).

**Sherwood Park:** July 9: great spring weather in May. Hot days in June and early July. No spring frosts – lots of berries set on Saskatoon. Garden looks the best we've ever had in the 37 years we've lived here.–Have noticed a decrease in the swallows and warblers and cliff swallows nesting under the bridges at Ball Lake – none this year ! lots of bumble bees visiting my flower beds (L. McDonell).

**Red Deer city:** chokecherries lush, poor Saskatoon berries (J. Brownlee).

**Ponoka:** lot of rain (130% of normal), above average temperatures allowed plants to mature. Plenty of berries (M.A. Predy).

**Lacombe (JJ Collett Natural Area):** June rains caused plants to grow fast and tall. Trees growing in areas that used to hold water for growing season seem to be dying. Balsam poplar have been going downhill for last several years but now spruce in very wet places also affected. [*editor comment: likely due to drought starting in 1989 in central parkland area*]. Abundant insects: dragonflies, mosquitoes, and a great variety of butterflies. Enjoyed Monarch butterflies on my lilacs: first time since 2007. Lots of moose again (J. Meeres).

**Caroline:** wet cool spring, dry hot summer and dry warm fall. Again a few 'bugs' attacking the poplars. Fall coloured leaves stayed on the trees longer than usual, through 2 snow falls. (K. Edwards).

**Central parkland east,** Elk Point: few chokecherries and lingonberries, but no pin cherries, saskatoons or blueberries. Monarch butterfly caterpillars on milkweed plants (C. Lumley).

## **SOUTHERN ALBERTA**

**Cremona:** a few days end of April with above normal temperatures: male cones on larch and male aspen catkins appeared very quickly: poof! June very rainy, July and Aug very hot. By mid- Aug most native non-woody plants had faded (M.J. Davies, Z. Kondra).

**Millarville area:** June quite wet, summer much hotter than usual (P. Kroeker).

**Irricana:** spring weather so dry that very few crocus or golden bean flowers (J. Wright).

**Calgary NW (central parkland):** relatively mild winter, below average snowfall. Snow cover gone March 23. April had twice the snow and rain than average, May had half the average, June had double the usual rain. Dandelion and many other species had abundant blooms (W. Brideaux).

**Finnegan:** Cool spring: flowers stayed in bloom longer. Great year for flowers and prairie grasses (lots of moisture) (E. Gillespie).

**Monarch:** April was very dry, normal to above normal temps. The flowering times and weather conditions are part of our decision making for timing and varieties of what we plant. Some years the spring is warm and sunny, so we plant crops that take longer to mature, like some squashes. I compare previous year's bloom dates with the current ones and try to get a picture of what the current season MAY be like (M. Hafichuk). [*editor's note: What indicators do you use in spring? see this Colorado website*]

<http://www.ghorganics.com/Phenology.html> for more ideas on natural indicators. e.g. “When the common lilac plant has leafed out - plant lettuce, peas and other cool weather varieties. When its flowers are in full bloom - plant beans and squash. When its flowers have faded - plant cucumbers and squash.”]

## FOOTHILLS AND MOUNTAINS

**Hinton:** Based on crabapple bloom time, spring 2012 was intermediate between 2010 (early) and 2011 (late) (H. Anderson).

**Sundre:** weather hot and fairly wet this summer, almost sub-tropical. Pastures thrived, never had fatter cattle. Best garden in years. Great year for apples. But in recent years apple blossoms and bees seem to be out of sync. During blooming only 3 or 4 bees seen, but dozens visited flower beds later. Beautiful fall leaves; little frost until early October (M. Halvorson).

**Drayton Valley:** June to early August: very wet. Some vegetables rotted in the ground. No Saskatoon berries, again. Dragonflies abundant in July and later, mosquitoes. (F. MacKay)

**Crowsnest Pass:** Winter was more like perpetual spring. In mid-April on the east flanks of the Livingstone Range, we experienced dry, snow-free, near-drought conditions, while just a virtual stone's throw to the west - and within the core of the Rocky Mountains – there was a near-record snowpack, even more snow than last year (D. McIntyre).

**Waterton:** Saskatoons had an INCREDIBLE year, like that of 2010 if not better (Park Staffer S. Laroque).

**Jasper National Park, east gate:** Snow gone from valleys by March. June had rain, storms. Sustained flooding of marsh and high levels Athabasca River all summer, helped by big snow melts in the high country. Lush plants in June but then saskatoon crop poor; leaves turned brown with a rust-like covering before berries produced. Chokecherries, buffaloberries had average production. A record summer for mosquitoes, even on the hottest of days there was no respite (even the hummingbirds were scratching!) (E. Slatter).

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## Canada PlantWatch updates:

Ottawa University now coordinates NatureWatch (includes PlantWatch, FrogWatch, Icewatch) and received a grant this spring to move program forward. If you wish to report data on the web, the site [www.plantwatch.ca](http://www.plantwatch.ca) is active. Observer registration on my Alberta webpage [plantwatch.naturealberta.ca](http://plantwatch.naturealberta.ca) should be available this spring. **Do have a wonderful spring 2013, tracking spring blooms!**

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