

April 2016: Alberta PlantWatch Annual Newsletter



How Early Will Blooming Be This Year?

Thanks very much to all our Albertan PlantWatch participants! This is an important year to note plant bloom and leafing dates, as there is a very strong El Nino effect this spring. El Nino involves warming in the Pacific Ocean off our west coast, and this usually results in warmer drier conditions in Alberta. The data you record for PlantWatch is very valuable, because the timing of plant growth is one of the most sensitive, immediate, and easily-observed responses to climate change.

Students Track Spring

This spring, I am happy to be working with Edmonton teachers once again, to involve their classes in PlantWatch. This program is funded by the city of Edmonton, and facilitated by the wonderful staff at Inside Education. Keen Grade 4 teachers from ten schools have been recruited to participate. I've taught a workshop, and now Inside Education will visit the classes to present "How To PlantWatch" to the students. You can learn more about these great animators at <http://www.insideeducation.ca/>.

Predicting The Fire Season

Here are some results from the fire project that I completed last fall at the University of Alberta. The spring forest fire season can be very expensive in Alberta, and most spring fires are caused by people. The fire danger starts when the snow melts, which is approximately the same time that aspen starts to bloom (i.e. shed pollen). The spring danger ends when the forest greens up, as leaves emerge and conditions get moister. The first bloom of saskatoon is a good indicator of when many tree leaves have emerged.

Using the PlantWatch data, I determined that the average start of bloom for aspen trees in Alberta's central parkland is day 106 (April 16th). At this point, the aspens have had about 76 growing degree days (GDD) of accumulated temperature in spring (using 0°C as a base temperature). On average, saskatoon begins to bloom around day 137 (May 17th), with about 316 GDD.

Check out January's *Iris* (http://anpc.ab.ca/wp-content/uploads/2014/12/IRIS_75_Jan_2015_Email.pdf) for an article on Alberta PlantWatch, with more information about how plant data can help to reduce the cost of fire fighting in Alberta. You'll also get tips on how you can

use flower bloom times to determine the best time to plant vegetables for a great crop. Plant growth dates can even tell you when to grab your fly fishing rod to head to a river and which flies to take!



Alberta Wildfire

Clouds of Spruce Pollen

As you will see in the 2015 observer comments below, spruce and pine trees produced a lot of pollen in 2015. Production peaked around May 25th in Edmonton. On May 27th, Tim Klein of the Alberta Forest Service noted that fire tower observers sometimes see columns of pollen that could look like smoke from a fire. He said it had been an interesting spring in terms of pollen travel, due to lack of rain. In dry springs, conifer pollen isn't rinsed off, and hot weather creates convective columns in the air, that carry pollen up high and far away. There was also abundant spruce seed production over the past winter. The local Christmas Bird Count featured unusually large flocks of white-winged crossbills, enjoying this plentiful and nutritious food supply.



White spruce cones

Will 2016 Be The Warmest Year Ever?

2015 was the warmest year (globally) on record, and January 2016 was the warmest January on record. February 2016 ocean (and land) temperatures also set records. Learn more at

<https://www.climatecentral.org/news/february-blows-away-global-heat-record-20134>.

The graph of February global ocean temperature anomalies at <http://www.ncdc.noaa.gov/cag/time-series/global/globe/ocean/1/2/1880-2016> shows the amazing increase in winter ocean temperatures over the past 60 years; each year shows the 'anomaly' or difference from the average temperature.

Such warming is affecting the timing of growth and reproduction in plants and animals worldwide. In many parts of the temperate world, including the Netherlands, Sweden and the USA, plants and birds are changing their usual spring timing:

<http://kazu.org/post/scientists-turn-natural-world-clues-shifting-seasons#stream/0>

In France, my colleague Isabelle Chuine reports that they are having the 'weirdest' year ever. Some plants bloomed two to six months early. Lilacs usually bloom in May, but she found some plants blooming in December! This is not good news. Trees that bloom before the real cold of winter arrives, can be damaged so that no fruit or seeds will be formed.

Tim Sparks, a professor in England, examined more than 160,000 observations of oak trees, and found that the more the first dates of flowering vary in the Spring, the poorer the acorn crop.

<http://www.theguardian.com/science/2015/oct/21/plantwatch-simons-oaks-acorns-spring-flowering-pollination-climate-change>

Thanks again for your interest in and contributions to PlantWatch! Your observations are invaluable to help us track what is happening as our weather grows more variable and the climate warms.

Observer Comments From 2015

Alberta Overview. Based on PlantWatch reports, 2015 had a very dry, warm growing season, especially from April to mid-July. Wild strawberry flowered abundantly and the saskatoons were excellent almost everywhere. It was also a banner year for choke cherries, blueberries,

mountain-ash, Evan's cherries and spruce trees. The drought meant fewer flowers for prairie crocus, early blue violet and twinflower. It also brought abundant grasshoppers and few or no mosquitoes (except in Jasper). Leaves on some non-native trees (Siberian larch, elm, Manitoba maple), turned color early (in August) and dropped. Many apple trees shed both leaves and fruit early. Late summer brought moisture, which may explain the re-blooming of strawberry reported by several observers.



Wild strawberry

Southern AB

Calgary. Fish Creek Provincial Park. Golden bean was very prolific, with a long bloom time. **D. Ramsay.**

NW Calgary ('southern toe of aspen parkland'). It was much drier and warmer than normal. Small sloughs were dry by mid-June. We had record early-flowering (over the last 15 years) for dandelion, golden bean, strawberry, early blue violet, yarrow and northern bedstraw. **W. Brideaux.**

Medicine Hat. Police Pt. Park. Golden bean, choke cherry & lilac in full bloom May 12th. **M. Munz Gue.**

Mountains and Foothills

Banff. An odd year. Too hot and dry for too long, and then too cold and wet for too long. Some berries like buffaloberry did not do well, but it was a banner year for mountain ash, rose and kinnikinnick. We got a second crop of garden peas for the first time. Went backpacking at Thanksgiving, and noted purple asters still blooming in the Palliser Valley of Banff N.P., so likely no hard frosts to that point! **L. Dowling.**

Canmore. A beautiful spring, summer and fall. Numbers of all wildflowers seemed about average, but the alpine meadows were awesome! **J Buchanan.** A funny year - very warm in February-March, then cold, then warm in May. I recorded my first blooms in March, but for the May Species Count (end of May), many species were behind schedule. **L. Frost.**

Cardinal Divide south of Hinton. Phenology of 24 mountain plant species was studied for eight years (2008-2015), visiting this lovely alpine ridge 5-6 times each year to record bloom stages. The earliest blooming was in 2015, and the next earliest in 2014. **H. Anderson.**

Coleman, Crowsnest Pass. April - snow melt sparse, then the lowest run-off I've seen in years. May was cooler with rain but no flooding; it all soaked in. The last week of June was HOT, with thunderstorms/some rain. Had several rounds of heavy forest fire smoke which made breathing rather difficult. **M. Primrose.**

Hinton area fire tower. The theme of this season was 'early'! Blooms, tree swallows and mosquitoes were early; the hot dry weather of July arrived in June. More fires in this area as well. **V. Demuth.**

Jasper National Park, East Gate. The early March warmup was 3-4 weeks ahead of schedule. It was a typical variable April (warm, cold, flurries, rain) but water levels were low. Park staff fought fires (human caused) last two weeks of April. May and June were dry. August returned to normal rainfall, with lush growth of native plants. Also an explosion of mosquitoes. We had the most abundant saskatoon, chokecherry and strawberry crops in years, but the buffaloberry crop failed. At the end of summer there was an eruption of mushrooms. July 1st, a heavy aphid infestation on caragana was great food for vireos, warblers, kinglets etc.! Bumblebees were numerous in spring on willow catkins and then abundant all summer. Great to see so many little brown bats. **E. Slatter.**



Saskatoon berries

Peers area (NE of Edson). We had a bountiful garden, and actually grew some corn (never previously managed). There was an amazing crop of saskatoons on our bushes, with heavy clusters hanging like grapes. The gentle spring that made for such successful fruit, also contributed to a most efficient hatch of local birds, which stripped the bushes. Dreams of cases of vintage saskatoon wine vanished before our eyes. **J. Ficht.**

What an awesome year we have had. Spring came early. The first frog calls were April 18th. Our growing season was a good month longer than normal. I harvested the last of my tomatoes in October. **L. Ahlf.**

Rocky Mountain area house fire tower. The towers opened two weeks early in our area, since there was early drying in the spring. By May, we'd had only 42 mm of rain, compared to 146 mm at the same time last year. June was dry, but July reversed the trend with 111 mm rain, compared to 25 mm in 2014. **S. Kinzel.**

Waterton Park area. Hiked along the Lakeview ridge in mid-June - white mountain avens slightly past peak bloom; lodgepole pine just starting to shed pollen; Mariposa lilies at first bloom (plus 49 other plant species in bloom!); heard calls of prairie falcons, marmots, dusky grouse, sandhill cranes, ravens, nutcrackers, etc. and saw trumpeter swans. In early September, it was very dry in Crowsnest Pass, and berries were withered. Some prairie crocus started to flower again, with many blooms eaten by elk and deer. After some rain in mid-September we had an unusual fall. As aspens turned yellow, some wildflowers, including sticky purple geranium, blue flax, strawberry, Jacobs' ladder, moss phlox, re-bloomed! **D. McIntyre.**

Central Alberta

Barrhead. Spring was hot and dry, with fewer wild lilies than usual, blooming 10 days early. The saskatoons were early, and asters bloomed in July instead of August. Lots and lots of grasshoppers! **H. Zieger.**

Bon Accord. Very few sparrows migrated through this spring; same with juncos. Tree swallows were early, arriving April 20th. It snowed on May 6th. **B. Collier.**

Caroline. There was little snow over winter and a dry spring, then the first good rain May 16th and a few showers in July. In August, we had lots of smoke from forest fires in BC and Washington. Early September had many cloudy, rainy days (some downpours). Farmers and campers weren't happy with the timing of the moisture! In May, zillions of tiny spruce trees appeared anywhere there was an open area. We saw very few songbirds (even chickadees) and lots of spruce and pine pollen. June 20th and after, the aspen poplars were attacked by caterpillars, then many light brown moths the size of a thumbnail. Squirrels started cutting green cones in mid-July; in many areas the ground was covered in cones and there were lots of spruce seeds blowing in the wind. **K Edwards.**

Devon. Spring was very dry with only about 30 mm of precipitation in April-May (about half the average). Lack of moisture didn't bother the dandelions; have never seen such carpets of yellow, then white. **B. Janz.**

Edmonton. First pollen shed in aspen was ≈March 29th, the earliest since 1992. April blooms of male thorny buffaloberry usually attract small black (mason?) bees,

but in 2014 & 2015 very few bees were seen. Pollen shed from white and blue spruce, plus lodgepole and Scots pine was heavy, starting ≈May 20th. By May 25th there was a yellow layer on cars, and pollen was sifting in through window screens. At the same time, crabapples and lilacs were at full bloom, prairie hares were eating dandelion seeds, and female aspen trees were shedding fluffy seeds. At night, gusty storm winds rearranged drifts of seed from American elm and Siberian elm in the street. **E. Beaubien.**

Leduc. 26 cm of snow on April 25th helped to bring the aspen into leaf. A few birch catkins started to shed pollen, but then it was hot and windy and the rest dried up. Surprisingly, our garden did well. Some trees and shrubs in dry spots started their autumn colors early. **T. Abbott.** Everything jumped into leaf very early, but then it was so dry that it all ground to a halt. Our area has had almost no precipitation since the snow of May 6th. Sloughs are very low (even the muskrat moved away!) Is there a blessing??? Well, although my garden is a bit patchy, there are almost no weeds! **B. Bolton.**

Red Deer and area. Prairie crocus and Milbert's tortoiseshell butterflies both appeared April 7, then mourning cloak butterflies April 19th, ruby-throated humming birds May 23rd and swallowtail butterflies May 27th. **D. Murray.** When rain finally came in July, we got downpours; one gave 5 cm of rain in ten minutes and a ton of small hail that did a lot of damage to the garden. **T. Krause.**

Sherwood Park. What a season! Despite dryness, abundant highbush cranberries and hazelnuts. Fewer tree and barn swallows than normal, but also few mosquitoes. **L. McDonell.**

St. Albert. 'Citizen science' is great for keeping the cranial computer humming away! Flowering dates this year were up to three weeks earlier than normal for many species. **H-J Kirstein.**

Sundre. A year of extremes. The hay fields got off to a poor start. Garden crops have changed. We could never grow beans due to frost and cool temperatures, but in the last 3-4 years they've thrived. There's a noticeable shortage of bees around the flowers this year. A good summer for birds; their songs were a constant all summer. **M. Halvorson.**

Tawatinaw. Only 60 mm rain as of August 22th (in 2014 we had 295 mm by then)! Few swallowtail butterflies this year; in past years we had lots on the lilacs. Lots of powdery mildew on chokecherries and other plants, brought on by heat stress. **L Horstman.**

Wainwright and area. The pastures/rangeland started out very slowly. Improved moisture from mid-

July to mid-September brought an amazing flush of new growth in late summer. Lots of plains rough fescue seed production in the Neutral Hills area. **P. Porter.** The saskatoons have been absolutely incredible at Clear Lake July 29th. In 30 plus years of picking I have never seen the likes of it. The hills were white with blossoms in the spring. **C. Snyder.**

Northern Alberta

Manning area. Battle Fire Tower. A cool, dry spring and dry summer. Mayday trees had a good berry crop, but pincherry didn't produce fruit for the second year in a row. **R. Cowie.**

Wembley. A late, dry spring. Wheat wasn't planted until the end of May. The fall weather co-operated; harvest was super and finished before thanksgiving. **M. Dommer.**

Whitcourt/ Swan Hills fire tower. The snow melted weeks earlier than in 2014. Deciduous bud break was earlier than usual, but coniferous trees took longer than usual to flush their needles. **K. Hurst.**

Fort McMurray. Aspen were getting ready to shed pollen around April 13th, but then froze and dried up without shedding any more. By May 22nd, lots of seed was being shed from female aspen trees. **P. Marlowe.**

Lac LaBiche. Saw more wild pollinators this year; plentiful fritillary butterflies and skippers. **R Creelman.**

Thank-you!

-to everyone for contributing your invaluable observations to Alberta PlantWatch! This program is now 30 years old, and many observers have contributed for two decades or longer.

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Dr. Elisabeth Beaubien

Alberta PlantWatch Coordinator
Canada PlantWatch Science advisor
e.beaubien@ualberta.ca. Office: 780-492-2540
Department of Renewable Resources,
751 General Services, University of Alberta,
Edmonton, AB, Canada T6G 2H1
Alberta PlantWatch: plantwatch.naturealberta.ca,
Canada PlantWatch: www.plantwatch.ca