



Native Plant News

Vol. 14, No. 2

Summer 2009

This tree will have you trembling

Aspens: The oldest, largest tree on earth?

By CHET NEUFELD
NPSS executive director

If you were to think of the largest or oldest tree in the world, what comes to mind?

Some of the more plant-savvy people out there might think that the Great Basin bristlecone pine (*Pinus longaeva*) is the oldest and that the giant sequoia (*Sequoiadendron giganteum*) would be a good candidate for the largest.

However, it turns out that one species may claim both titles, and is also native to Saskatchewan.

In fact, I guarantee that most of you have seen it. The often overlooked trembling aspen (*Populus tremuloides*) is native to the aspen parkland ecozone and parts of the boreal forest ecozone in Canada.

What makes this humble species

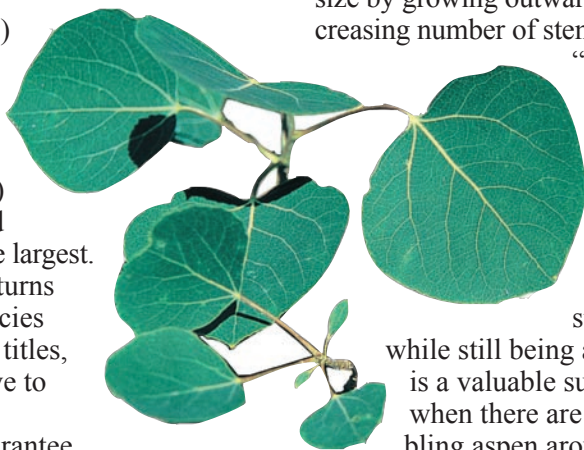
a contender for such lofty titles? In a word: cloning.

Trembling aspen has the ability to reproduce by sending out underground stems that then produce saplings that are genetically identical to the parent tree. Don't go looking for towering trembling aspen though; the clones achieve their size by growing outward with an increasing number of stems (notice I said

"largest" tree and not "tallest").

Through this method, trembling aspen are able to grow into a very large, multi-stemmed grove,

while still being a single tree. It is a valuable survival strategy when there are no other trembling aspen around to reproduce through pollination. And it is this strategy that allows it to produce the incredible biomass needed to be the world's largest tree.



PHOTOS COURTESY OF USDA-NRCS
PLANTS DATABASE / HERMAN, D.E.

The trembling aspen (*Populus tremuloides*) is an amazing plant species.

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Native Plant News is a quarterly publication of the Native Plant Society of Saskatchewan (NPSS) and is one of the benefits of membership. Members are invited to submit articles, news, views, photographs and comments. Views expressed by the authors are not necessarily those of the NPSS.

Deadlines:

Deadlines:	Submission	Publication
Winter Issue:	November 1	December 15
Spring Issue:	February 1	March 15
Summer Issue:	May 1	June 15
Fall Issue:	August 1	September 15

Membership Dues (Year End November 30th)

Individual	\$30
Family	\$45
Student/Low Income	\$15
Corporate	\$200
Life	\$500

Please contact the NPSS office for information about the lifetime membership instalment payment option.

From your new NPSS president

Greetings NPSS members!

I hope everyone is finally enjoying some 'normal' summer weather. As I'm sure many of you have experienced,



June 2009 has already added credence to the adage "If you don't like the weather just wait a minute"!

And just like Saskatchewan weather, our society is a force to be reckoned with! I am always amazed at what our small society manages to accomplish every year.

For example, just this spring a handful of volunteers planted nearly 5,000 seedlings at the Regina Plains Native Plant

Nursery. This is a real investment in future restoration projects and is the kind of work the NPSS is around to perform.

Our current success is built on the work of many people, not least of which is our past president, Michael Champion. Michael provided our society with calm, consistent and thoughtful leadership for the past six years, through the good, the bad and, yes, even the ugly times! Thank you Michael.

It is an honour to serve as the new president of the NPSS. I am excited to see where our shared passion for Saskatchewan's flora leads us!

Please contact myself, Chet or any member of the board if you have any questions, concerns or ideas to share. Please, enjoy your summer (weather permitting, of course).

— Tara Sample

PlantWatch volunteers needed

PlantWatch Saskatchewan is looking for volunteer plant-watchers to watch selected plants bloom in the spring and report their observations.

This data is used for climate change research, to help understand what is happening to plants in our changing world.

The PlantWatch program enables "citizen scientists" to get involved by recording flowering times for selected plant species and then reporting these dates through the PlantWatch website, or by mail to the PlantWatch Coordinator.

Individuals, classrooms and community groups are encouraged to participate! Check out PlantWatch at www.plantwatch.ca or at www.naturesask.ca (under education and monitoring) for more information.

To become a PlantWatch participant or for additional information, please contact Deanna at 780-9273 in Regina, or 1-800-667-4668 outside Regina, or by e-mail at plantwatch@naturesask.ca. *

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Grow your business, plant the seeds of success here.

Plant ID made easy

By *CHET NEUFELD*
NPSS executive director

I hope everyone is having a good summer.

Many of you have, or will be, joining us on one of our field trips this year, and many more of you will be travelling on your own to enjoy the many natural areas that Saskatchewan has to offer. And while you're out and about under the summer sun, you're bound to find an interesting plant or two.

It's always exciting to find a new plant that you've never seen before, and we've seen many rare species on our field tours. So what should you do if you find something that you're not familiar with?

Good question.

First of all, if you fancy yourself a botanist and have a field guide (or even better, a flora book) along, you can try and identify the plant. If this fails, or if you're still a botanist in training, take as many pictures of the plant as you can. Remember to get close-ups of the flowers, leaves (including where it attaches to the stem), a general photo of the whole plant and pictures of any other features that you think might be important for identification.

Be sure that the only plant in the picture is the one you want to identify. You can achieve this by flattening down other surrounding vegetation or by placing a background such as a clipboard or book behind the plant you want to photograph. Remember to include something in the photo for scale, as size is difficult to estimate from a picture.

If you have a GPS – great! Record the location of the plant with your GPS and take notes about the site: What else was growing there, if it was sunny, shady, wet, dry, or sandy or any other major features of the site. You may also want to make notes about the plant for features that might not show up on a picture, like whether the leaves were fuzzy or smooth or if there were spots on the stem. Also record the time and date you visited, and if you don't have a GPS, record directions to the site with road



PHOTO BY DAVID FREEMAN

Chet Neufeld gets real close to take a picture.

names/numbers and distances. For those more artistically inclined, you may even want to draw a map of the area.

It is generally not recommended to take a specimen of the plant, even it appears to be locally abundant, as it might be very rare outside the immediate area. If your pictures are good that, and the information you collected about the site, should be all an expert needs to identify the plant. If your directions are good, the expert can always go and visit it in the field to confirm its identity.

You can send your photos and information to the NPSS and we can try and identify it for you. If it's rare, we'll pass the information along to the Conservation Data Center, our provincial database for rare species occurrences.

Above all else, HAVE FUN! Challenge yourself to go and find a plant that you're not familiar with and identify it, or at least take a lot of really good photos of it. Take a close look at all parts of the plant and become really familiar with it so the next time you see it you'll know exactly what it is. Then you can go find another plant to learn about. And another . . .

If you know you've found a plant that is rare, you can send your findings to the Saskatchewan Conservation Data Center by visiting www.biodiversity.sk.ca or by calling (306) 787-9038. 🌿

Upcoming Events

May to September 2009

How to garden with Native Plants

Monthly workshops
First Nations University,
University of Regina
Regina, Sask.

For more info contact Fidji Gendron
(fgendron@firstnationsuniversity.ca) or
Malin Hansen (malin.hansen@uregina.ca)

July 2009

Dennis Holistic Grazing Event

July 6 – 13

Wawota, Sask.

Seminar, BBQ, tour and holistic grazing
training in association with the
University of Nebraska

For more information call 402-288-5611
or e-mail knox-county@unl.edu

AAFC-AESB Shelterbelt Centre Open House

July 9

Shelterbelt Centre,
Indian Head, Sask.

Call 1-866-766-2284 or email
agroforestry@agr.gc.ca for more
information

Gift of Green Nature Trail Hikes

July 15 and August 20

Pike Lake Provincial Park,

South of Saskatoon on Hwy. 60.
Contact the NPSS for more information
at 306-668-3940 or info@npss.sk.ca

The Great Scentless Chamomile Weed Pull

July 22 (tentative)

Nature Conservancy of Canada,
The Hubbard Property
Whitewood, Sask.

To volunteer call 306-347-0447
or toll free at 1-866-622-7275

August 2009

The Old Man on his Back Bison Facility Upgrades

August 28 (tentative)

Nature Conservancy of Canada,
The Old Man on his Back Prairie and
Heritage Conservation Area
Frontier, Sask.

To volunteer call 306-347-0447
or toll free at 1-866-622-7275

*To submit your native plant related event
to our events list, send your information
(including date, contact, phone number
and location) to info@npss.com.*

Sask.'s rare sand dweller

By SARA VINGE

Rare Plant Rescue Coordinator
Nature Saskatchewan

When one hears the word “desert,” images come to mind of scorching heat, thirst, cacti; and don’t forget the shores of the South Saskatchewan River.

What?

While Saskatchewan does not technically have any desert, areas of sandy soils, south facing slopes, hot microclimates and constant winds produce habitat patches with desert-like conditions in certain areas of the province. It is in these niche areas that small-flowered sand-verbena (*Tripterocalyx micranthus*)—also known as sand puffs—are found.

Unfortunately, these habitat conditions are becoming increasingly rare in Saskatchewan (and Western Canada), leaving sand-verbena with fewer and fewer places to grow. Small-flowered sand-verbena has been designated endangered by the Committee On the Status of Endangered Wildlife in Canada (COSEWIC), meaning that it is at risk of becoming extirpated – no longer occurring here – if trends contributing to its population decline are not reversed.

Sand-verbena is adapted to living in desert conditions and so can survive in a hot, windy microclimate with sandy soils and little moisture. An annual, this plant is ephemeral and manages to germinate, flower, and set seed in a very short period of time. It is an opportunist, avoiding the worst of drought conditions by germinating only if enough moisture is present for a sufficient length of time. This ensures the plant has adequate moisture in its early stages. Other characteristics, like leaves with reduced surface area, help it conserve water throughout the growing season.

It also has other adaptations to living in a sandy environment: Its viscid stem allows sand to adhere to it, buffering abrasion from airborne sand; and its seeds take advantage of the wind for dispersal by moving with the blowing sand. Recently, sand-verbena was discovered at a new site, approximately 100



PHOTO BY SARA VINGE

The small-flowering sand verbena (*Tripterocalyx micranthus*) has sand that sticks to its stem, which buffers it from abrasion from airborne sand.

km downriver from the only other known Saskatchewan site, suggesting that the winged seeds may also be dispersed by floating on water. This new site was a very exciting find, as it makes it possible, and even likely, that the plant is growing at other sites along the river. This species

is found on sandy soils with some degree of moving sand and would most likely be found on south-facing slopes and inner sides of river bends along the South Saskatchewan River.

Because small-flowered sand-verbena is an annual, and has such specific moisture requirements for germination, it may not come up every year, but conservation of its habitat is important for the continued survival of this unique plant. Habitat loss is the major threat to this species, through stabilization of sandy soils, conversion to cropland and invasive species. Contrary to popular belief, grazing can be beneficial to this plant, as livestock contribute to soil disturbances that prevent the sand stabilization so detrimental to this plant.

Nature Saskatchewan’s Rare Plant Rescue program strives to raise awareness about plant species at risk, and works with landowners who voluntarily conserve habitat for these species. If you think you have found small-flowered sand-verbena or any other plant species at risk on your land, please call us toll-free at 1-800-667-4668. ✨



PHOTO BY SARA VINGE

A flowering small-flowered sand-verbena.

Strengthening Stewardship: Investing at every step

4th National Stewardship and Conservation Conference
July 8-11, 2009
Calgary, Alberta

Held every 3 years, Stewardship and Conservation is the national conference where Canada's stewards meet to discuss emerging issues and develop solutions for the best possible stewardship of Canada's environment. This conference will bring together individuals, community groups, all levels of government, environmental and conservation organizations, industry, business leaders, aboriginal groups, educators, researchers, professionals and policy-makers from across Canada. Together, delegates will chart a roadmap for supporting, recognizing and integrating environmental stewardship into the way we live and do business in Canada and beyond.

Featuring keynote speakers including Monte Hummel and Preston Manning.

Monte Hummel is President Emeritus of World Wildlife Fund Canada and has served on the boards of over thirty Canadian and international conservation organizations.

Preston Manning served as a Member of the Canadian Parliament from 1993 to 2001 and was also his party's critic for Science and Technology. He has since released a book entitled *Think Big*, describing his use of the tools and institutions of democracy to change Canada's national agenda.

For more information please visit: www.stewardship2009.ca

*Ernie Ewaschuk and Bill MacDonald (conference co-chairs) **

Nature's clock is running too fast

By *DEANNA TROWSDALE-MUTAFOV*
PlantWatch Coordinator
Nature Saskatchewan

When it comes to nature, timing is everything. That's why plant phenology is so important when studying climate change.

Phenology is defined as the study of the seasonal timing of life cycle events for plants and animals. Some examples of phenology are the emergence of leaves and flowers, the first flight of butterflies, emergence from hibernation, the first appearance of migratory birds and when birds lay their eggs. Changes in the timing of natural events have long been regarded as very sensitive indicators of climate change. The fingerprints of man-made climate change are evident in seasonal timing changes for thousands of species on Earth.

One of the first Canadian collectors of flowering dates was Nova Scotia's superintendent of education, Dr. Alexander H. MacKay. He had students collect plant, animal, agricultural and weather phenology from 1897-1923.

Today, ecological monitoring through provincial PlantWatch programs has attracted large numbers of people who record blooming times across the country.

Analysis of long term plant records for the Edmonton area, for example, show that Aspen poplar (*Populus tremuloides*) is flowering almost a month earlier over the period 1901-1997. (www.plantwatch.sunsite.ualberta.ca/downloads/phenpaper.pdf)

Phenology has increasingly become a mainstay in the study of climate change. Henry David Thoreau is considered as one of the founding fathers of precise record keeping of the flowering of plants. From 1851 - 1858 Thoreau tracked the first flowerings of up to 500 species in northeastern USA. Scientists often use very old data and natural history collections, including Thoreau's, to assess global warming's present impact on plants, animals,



insects, fish, reptiles and amphibians.

In the United States, the Federal government and University scientists are so alarmed by the changes they are now seeing that they have created a National Phenology Network at the U.S. Geological Survey to monitor these changes (www.usanpn.org). An educational monitoring program called Project BudBurst has attracted thousands of people who monitor the blooming of plants across the USA.

Here are some changes that have been noted (source: www.nytimes.com):

- In Boston, blueberry bushes are blooming more than a week earlier.
- Lilacs in Vermont have been leafing out three days earlier each decade.
- In Washington, D.C., cherry trees are blooming about one week earlier than 30 years ago.
- 27 per cent of the species that Thoreau observed have vanished from the Concord, Mass., area.

Biologists foresee big problems when nature's time clock is out of balance. Certain plants and animals are dependent on each other for food and shelter. If plants bloom or bear fruit before animals or insects return or surface from hibernation, the animals could starve. Also, plants that bud too early can be hit by a late frost. Agriculture and horticulture could be affected and warmer temperatures, combined with increased greenhouse gases, could cause earlier and longer allergy and respiratory problems for people.

Nature's clock is out of balance, and climate change is the culprit. Try to do your part – participate in ecological monitoring programs such as PlantWatch, IceWatch, FrogWatch and WormWatch, and tread lightly on the earth in every possible way. *

Trembling aspen

Continued from Page 1

Researchers in the U.S. have recently discovered a trembling aspen forest in Utah to be just a single clone. This clone covered over 43 hectares and was comprised of over 47,000 individual stems. Estimates have calculated the total weight of wood in this clone to be approximately 6,000 tonnes, over three times more than General Sherman, the largest giant sequoia at 1,800 tonnes.

Jim Pojar, co-author of *Plants of the Western Boreal Forest and Aspen Parkland*, suspects that Canada may hold aspen clones as large as the one in Utah, but that no one has looked or made any formal measurements.

How can you tell if the aspen stand you're looking at is a clone? The only sure fire way to tell is through genetic testing, but if all the leaves in the stand emerge at the same time in spring and turn the same colour simultaneously in the fall, then the trees you're looking at just might be a clone. Other indications of a clone include leaves of different trembling aspen all falling off at the same time and similar angles of branches of different trembling aspen as they grow away from the trunk.

Cloning is also the reason why trembling aspen may be the oldest living organism in the world.

While it is unusual for an individual stem to exceed 100 years old, the clone as a whole may have survived much longer as new stems replace dead and dying ones.

The age of an existing aspen stem really tells us nothing about the age of the clone itself. Scientists have estimated that some trembling clones are as much as 8,000 years old, almost twice that of a Great Basin bristlecone pine (4,884 years). In fact, some scientists hypothesize that certain trembling aspen stands may be as old as 1,000,000 years old! What's more, they suggest that the trembling aspen could be an immortal plant, dying only from environmental catastrophes or disease rather than old age.

The trembling aspen in Saskatchewan haven't been estimated for stand age, but it's likely that our trembling aspen are no older than 13,000 years old – at the most – as before this time the land would have been under a kilometre of glacial ice. In reality, they are probably much younger than that. The U.S. has been ice free for longer and so their trembling aspen had a head start and are therefore older.

The next time you see a trembling aspen, remember these facts and hopefully you won't look at it any more as just a boring tree:

- Trembling aspen contains salicylic acid in its bark, which is the active ingredient in pain medication (the first nations used to chew the bark to relieve pain).
- The bark of trembling aspen has a greenish tinge thanks to chlorophyll, which is what gives leaves their green colour. The trembling aspen is one of the only species of trees that can photosynthesize using anything other than its leaves.
- The root system and stems of a trembling aspen clone work together. If an edge of a clone is near water, the roots will take this water in and distribute it to other parts of the clone in drier areas. In turn, these parts may distribute nutrients to areas of the clone that are lacking them. If an individual stem



PHOTO COURTESY OF USDA-NRCS PLANTS DATABASE / JEFF MCMILLIAN

Trembling aspen do reproduce through pollination when they can.

dies, it will eventually rot and its nutrients will be recycled back into the clone.

- Aspen stem densities have been measured at 162,000 per hectare!
- Trembling aspens reproduce through pollination as well as cloning; their pollen can be carried on the wind for many kilometres in case there are no other aspen nearby. They also readily hybridize which can help them attain beneficial characteristics such as resistance to certain diseases or insects.
- The leaf stem (petiole) of an aspen leaf is flat while most other trees have rounded petioles. It is this trait that allows trembling aspen leaves to, well, tremble. Even with the slightest breeze there will be some movement. It is thought that this trembling plays a part in leaf evapo-transpiration.
- Fire kills individual stems of trembling aspen very easily because of their thin skin, but the whole clone is rarely killed because the roots generally survive. In fact, trembling aspen needs fire to survive. Fire-killed stems result in a hormone imbalance in the clone, which triggers the clone to produce new saplings. Often, the response is such that many more stems are produced than were originally destroyed by the fire. If fire is excluded from a forest, conifers will eventually shade the trembling aspen out and take over.
- Trembling aspen is the most widespread tree in North America, occurring from northern Mexico to Alaska and from British Columbia to Newfoundland and Labrador.
- Fossilized leaves of trembling aspen have been found. They look nearly identical to today's trembling aspen leaves.✱

References: Grant, Michael C. 1993. "The Trembling Giant". *Discover Magazine*. October issue.

<http://discovermagazine.com/1993/oct/thetremblinggian285>

NPSS board member profile

Margaret Put is an ecologist who has held numerous positions throughout her career. Some of the positions she has held include as Land Representative and later Manager of the Conservation Cover Program with Saskatchewan Agriculture and Food (now the Saskatchewan Ministry of Agriculture), as a Shelterbelt Specialist with Agriculture Canada/ PFRA, then as a Park Warden with Parks Canada.

She also ran a sheep-cattle operation in conjunction with her environmental consulting company in the natural resource sector. Clients she has consulted with include Ducks Unlimited, Saskatchewan Watershed Authority, the Nature Conservancy of Canada, Saskatchewan Ministry of Environment, and the Saskatchewan Institute of Applied Science and Technology (Woodland Campus).

Margaret has since sold her farm and for the past 12 years has focused on the oil and gas, wind power and mining sectors with her consulting company. Margaret has a Certificate in Ferrier Science, Certificate in Beef and Dairy Technology, and a Bachelor of Science in Agriculture, majoring in Plant Ecology. She is also a Professional Agrologist.

Margaret offered to sit on the board in the hopes that industry representation would be useful to the NPSS. She thought the NPSS provided an excellent resource in her field, and hoped that she could provide some expertise in areas that may not have been previously addressed. She was also gently persuaded by her friend and NPSS board member Don Fontaine. 🌟

Native seed list

The NPSS has just updated a native seed, plant and services list. This document is the source for all of your native plant needs; it has a list of native seed and plant suppliers along with a species index that is cross-referenced to the supplier list.

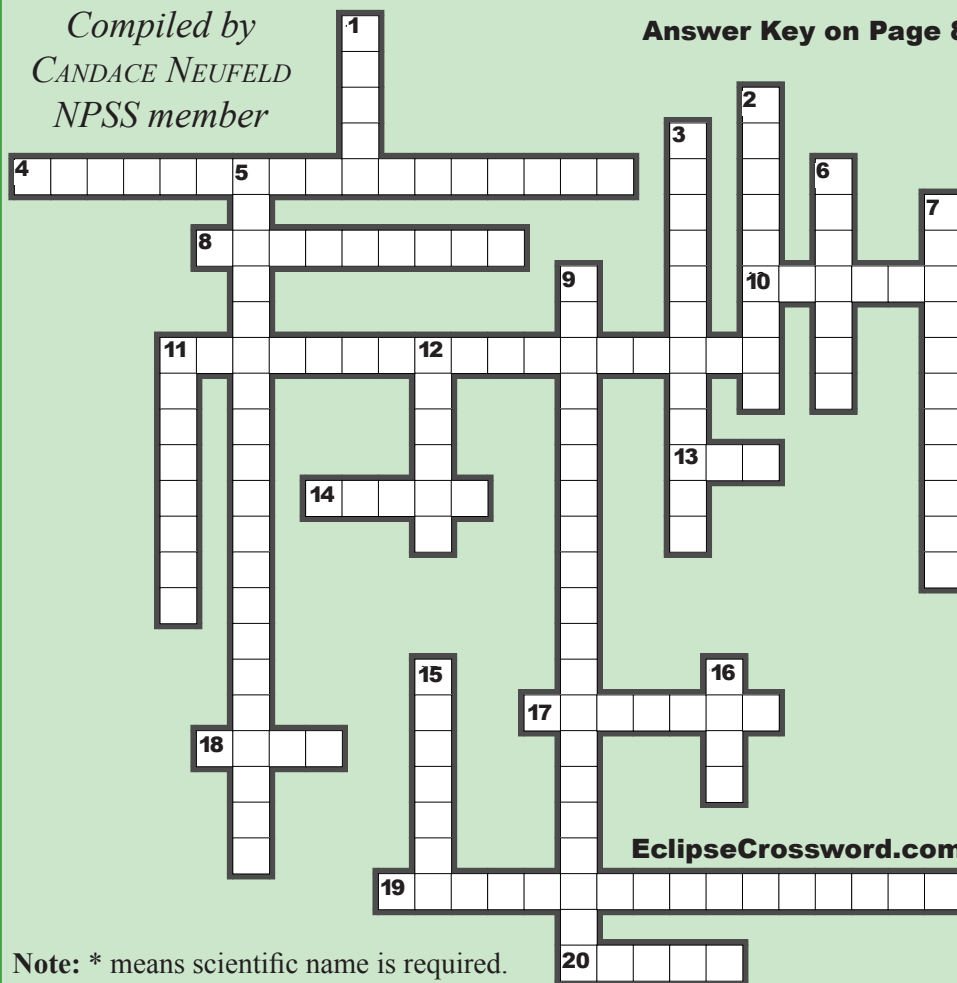
It also lists those that provide services related to native plants such as seed testing, harvesting and cleaning.

If you have any additions or comments about the list, please let us know. The list will be on our website once it's updated, but you can contact Chet at info@npss.sk.ca or (306) 668-3940 to get a copy now. 🌟

NPN Crossword

Compiled by
CANDACE NEUFELD
NPSS member

Answer Key on Page 8



EclipseCrossword.com

Note: * means scientific name is required.

DOWN

1. Plant family containing the taxonomic words: *palea*, *lemma*, *glume* (common family name);
2. Spatial arrangement of pairs of leaves that are opposite each other and at right angles to those above or below;
3. Native grass that has separate female and male plants;
5. This native prairie flower has tepals (2 words, no spaces);*
6. A type of inflorescence often seen in grasses;
7. This invasive species' roots are often more than 20 feet deep (2 words, no spaces);
9. Saskatchewan's provincial grass (4 words, no spaces);
11. Type of leaves in the legume family
12. A type of pod which has constrictions between the seeds;
15. The stalk of a leaf;
16. Plant family with square stems, opposite leaves and often a strong odour (common family name).

ACROSS

4. An invasive plant growing along edges of wetlands with pretty purple flowers (2 words, no spaces);
8. Native grass found all over southern Saskatchewan (2 words, no spaces);
10. Pollen grains adhere to this receptive surface;
11. This aquatic plant is carnivorous (2 words, no spaces);
13. Stiff bristle projecting from the top of a grass seed;
14. Geranium comes from the Greek word "geranos" after the look of the fruit and means this in English;
17. A modified stem or leaf for climbing;
18. Anemone comes from the Greek word "anemos", which means this in English;
19. Saskatchewan's provincial tree (2 words, no spaces);*
20. Genus for this shrub/tree which comes from a Latin word meaning "to leap or spring", referring to its fast growth.*

Photo workshop

The NPSS will be hosting an outdoor photography workshop featuring professional photographer and biologist Chris Hendrickson at Saskatoon Natural Grassland area on Central Avenue, just north of the Regional Psychiatric Centre on July 7 from 7 to 9 p.m.

Chris has experience with many different subjects and styles, with work that ranges from weddings to stock photography. However, he is particularly known for his polar bear photos, resulting from leading sightseeing tours near Churchill, Man., for the past several years. To see Chris' work, visit his website at www.chrishendricksonphoto.com

The workshop is open to anyone, regardless of skill level, and will consist of an informal walk through the Saskatoon Natural Grassland area. For those wanting to hone their plant identification skills, there will also be botanists on site. Please come prepared to stay in the field for two hours. You will also need to bring your own camera and related gear.

Registration is free, but please let Chet Neufeld at the NPSS know that you will be attending so that he can plan accordingly. Please call (306) 668-3940 or e-mail info@npss.sk.ca to register or for more information.*

... and photo contest

The NPSS is having a photo contest and you're invited to participate. If it's plant related we want to see it!

Photos must be taken in Saskatchewan. High-resolution (300 dpi or better) digital images are preferred. For each image, please send a caption stating what the photograph is of, the name of the person who took the photograph and the location the photo was taken. Please send digital images in TIFF, JPEG or GIF format.

Send photos to Box 21099, Saskatoon, SK, S7H 5N9 or e-mail them to info@npss.sk.ca with the subject line "photo contest" by **Sept. 30, 2009**. By submitting your photos, you are giving the NPSS permission to use your photos in an upcoming issue of *Native Plant News*. If you would like your photos returned, please include a stamped, self-addressed envelope.*

Crossword Answer Key

Across: 4. Purple Loosetrife, 8. Blue Grama, 10. Stigma, 11. Common Bladderwort, 13. Awn, 14. Crane, 17. Tendiril, 18. Wind, 19. *Betula papyrifera*, 20. *Salix*
Down: 1. Grass, 2. Decussate, 3. Buffalograss, 5. *Lilium philadelphicum*, 6. Panic, 7. Leafy Spurge, 9. Needle and Thread Grass, 11. Compound, 12. Loment, 15. Petiole, 16. Mint.

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