

August 2018 - Issue #8



Discovery Digest

Highlights of U of S research news

In this issue: USask instrumental in sequencing wheat genome, researchers discover three new frog species, NSERC funds X-ray tech and wetlands research, student funding success in international and nation competitions....

Every month, USask Research Profile and Impact highlights research from across campus. *Discovery Digest* is a glimpse into how U of S research, scholarly and artistic work is making a difference for Saskatchewan, Canada, and the world.

[USask plays pivotal role in cracking wheat genome code](#)



Curtis Pozniak, researcher and wheat breeder at the Crop Development Centre in the University of Saskatchewan (USask) College of Agriculture and Bioresources, and **Andrew Sharpe**, director of genomics and bioinformatics at the USask Global Institute for Food Security, have played a pivotal role in solving the billion-piece jigsaw puzzle of the wheat genome, a discovery that will help breeders around the world produce better wheat varieties. The results, the highest-quality genome sequence to date of the bread wheat variety *Chinese Spring*, were published Aug. 16th in *Science*.

Pozniak and Sharpe co-led the Canadian contribution to the International Wheat Genome Sequencing Consortium project, an effort of more than 200 scientists from 73 institutions in 20 countries, over 13 years. The Canadian effort involved scientists from USask, the National Research Council, Agriculture and Agri-Food Canada, the University of Guelph, and the University of Regina. [Read the full story.](#) [Read the paper in *Science*.](#)

[USask researchers uncover insect-resistant genes in wheat](#)



Kirby Nilsen, recent USask PhD graduate supervised by **Curtis Pozniak**, is among the first researchers worldwide to apply the groundbreaking sequencing of the bread wheat genome, which was announced today, to develop more pest-resistant crops. Nilsen has used the new sequence to identify genes in wheat that can help breeders select for a solid stem and help the plants resist wheat stem sawfly— a pest which could cause annual yield losses of up to 30 per cent to the \$11-billion Canadian wheat industry. [The story is part of *The Young Innovators series, a partnership with The Saskatoon StarPhoenix.*](#)

[USask researchers discover three new species of poisonous Colombian frogs](#)



USask researchers **José Andrés** and **Andrés Posso-Terranova** have **just discovered three new species of frog** by examining over 300 species of poison dart frogs -- tiny and incredibly colourful animals -- deep in the jungles of Colombia. The new species appear to be already at risk of extinction. The results were published in July in the journal *Molecular Ecology*. [Read about the discovery.](#) [See photos of the frogs.](#)

[USask X-ray technology, wetlands research get NSERC boost](#)



USask researchers **Irena Creed** and **Tim Kelly** have been awarded a total of \$1.2 million in Strategic Partnership Grants by the Natural Sciences and Engineering Research Council of Canada (NSERC) for two research projects that can improve the prairie environmental landscape and transform breast cancer screening technology.

Creed, working with researchers at McGill University, University of Manitoba, University of Waterloo, and Western University, will study the loss of wetlands in prairie agricultural areas, and the sequestration of nutrients which promote algae growth in downstream lakes.

Kelly, working with USask electrical and computer engineering professor **Safa Kasap** and industry partner Analogic Canada Corporation, will develop a new technology using lead perovskites in X-ray imaging to improve breast cancer screening.

[USask student awarded US\\$150,000 fellowship to advance canary seed research](#)



Suneru Perera, a PhD student in the USask College of Agriculture and Bioresources, supervised by Prof. **Michael Nickerson**, is the only student in Canada to be awarded a US\$150,000 fellowship by the Foundation for Food and Agriculture Research (FFAR), a U.S. agricultural research organization. Jointly funded by FFAR and Saskatoon-based POS Bio-Sciences, Perera is developing processing techniques to expand the uses of canary seed for human consumption, and honing the skills he will need to succeed as an industry scientist.

[Banting Fellowship leads to testing of criminal risk tools](#)



USask post-doctoral fellow **Maaike Helmus**, supervised by professor **Mark Olver**, was awarded a prestigious [Banting Fellowship](#) to lead nationally important research into risk

assessment tools that could help courts determine whether inmates, particularly Indigenous individuals, are likely to re-offend. **Helmus** has cut the fellowship short to accept an assistant professorship at Simon Fraser University in the fall, but her research will continue in collaboration with **Olver**.

[Four USask students awarded prestigious Vanier Scholarships](#)



2018 Vanier Canada Graduate Scholarships have been awarded to four top USask PhD students to pursue their research:

- **Scott Adams** (health sciences), for research to improve medical imaging in northern Saskatchewan,
 - **Zoe Gillespie** (biochemistry), for research in treating premature aging disease in children,
 - **Caroline Aubry-Wake** (hydrology), for studying climate change impact on glaciers,
 - and **Julie Colpitts** (biology), for studying feral horses on Sable Island to develop conservation strategies. [Read the full story here.](#)
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Commercialization

USask researchers melt garbage into gold on Sept. 20th *Dragon's Den* episode



USask chemistry professor **Stephen Foley**, accompanied by business partner **Graham Fritz** and his former students and now business partners **Hiwa Salimi** and **Loghman Moradi**, will pitch *CBC's Dragon's Den* program about their innovative method for extracting gold from electronic waste. Will their pitch be golden? Find out during the first episode of the season: *CBC Television*, Sept. 20, at 8 p.m.

Updates

CLS extends shutdown to repair electron gun



The Canadian Light Source synchrotron at the University of Saskatchewan is extending an unexpected shutdown to repair a critical piece of equipment.

To complete the repairs, the CLS is cancelling user shifts until Nov. 16, and rescheduling currently delayed research to after the repairs are complete in November and continuing until June 2019.

The CLS plans to issue [a call for proposals for new projects in January 2019](#) to be conducted between July and December 2019. [More information is available on the CLS website.](#)

Water Security Research

[GWF video released](#)



The USask-led Global Water Futures (GWF) program has released a video encapsulating the Global Water Futures Inaugural Annual Science Meeting. Researchers from around the world gathered in Hamilton, Ont., and on the Six Nations of the Grand River reserve on June 3–6, 2018. Jointly hosted by McMaster University and Six Nations, the conference focused on co-creation of Indigenous and non-Indigenous research. [Watch the video here.](#)

[International irrigation commission conference held in Saskatoon](#)



Researchers from USask are among water scientists from around the world presenting their work this week at [the annual conference of the International Commission on Irrigation and Drainage](#). Keynote addresses were delivered by: **John Pomeroy**, Canada Research Chair in Water Resources and Climate Change and director of the USask-led GWF; **Peter McCornick**, executive director of the Daugherty Water for Food Global Institute (DWFI) at the University of Nebraska, and **Maurice Moloney**, executive director and CEO of the USask Global Institute for Food Security.

In THE CONVERSATION

[Oct.1 - Want maximum national and international exposure for your research findings?](#)

[Sign up now for a writing workshop organized by Research Profile and Impact, with Scott White, *The Conversation Canada* Editor-in-Chief](#)



Come learn about how best to pitch to and write for *The Conversation Canada* from Scott White, Editor-in-Chief.

What is [*The Conversation Canada*](#)? It's a new national academic newswire for researchers who write short articles in their areas of expertise, working with experienced journalists as editors. USask is a founding member and one of 26 Canadian university members.

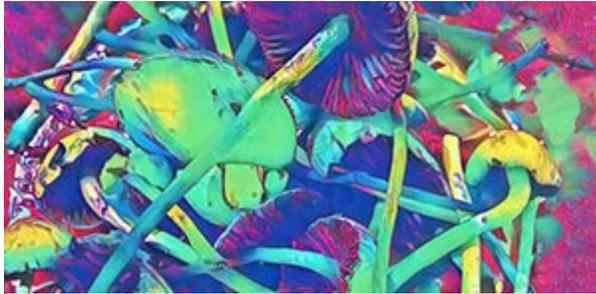
The Conversation network, which includes *The Conversation Canada*, attracts **10.7 million users per month** and reaches **35 million readers** through free republication. Over **22,000 media outlets** use content from The Conversation sites, among them The Washington Post, Maclean's and The Guardian.

[There will be three 90-minute workshops offered, open to faculty, graduate students and](#)

[post-doctoral fellows. Space is limited to only 90 people, so sign up today!](#)

Campus communicators are also [invited to attend a separate workshop on “Building USask Research Profile through The Conversation,” Oct. 1, 3:30 p.m. to 5 p.m. Sign-up here.](#)

[The real promise of LSD, MDMA and mushrooms for medical science](#)



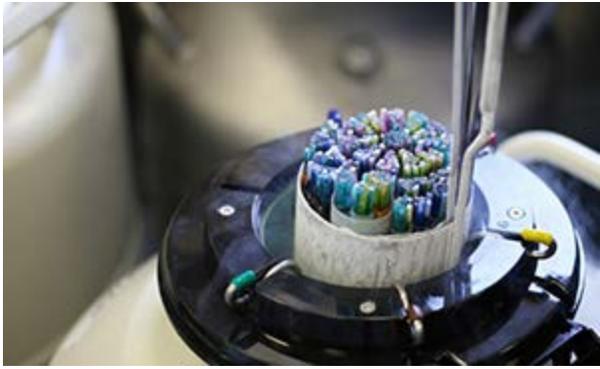
Writing for *The Conversation Canada*, **Erika Dyck**, USask professor of history in the College of Arts and Science and Canada Research Chair in the History of Medicine, explores why research on the potential therapeutic benefits of psychedelic drugs such as LSD is making a comeback. Today’s researchers may have more sophisticated tools for advancing the science of psychedelics, but these drugs have always inspired harmony between brain and behaviour, individuals and their environments, and an appreciation for Western and non-Western traditions mutually informing the human experience, she suggests. [Read the full item.](#)

[John A. Macdonald should not be forgotten, nor celebrated](#)



USask Indigenous studies professor **Robert Innes** argues in [*The Conversation Canada*](#) that statues and commemorations can act to actually erase history, as evidenced by the fact so few Canadians know the history of John A. Macdonald’s genocidal policies inflicted on First Nations and Métis people. [Read the whole article.](#)

[Who gets the frozen embryos in the divorce?](#)



Writing in [*The Conversation Canada*](#), USask Johnson Shoyama Graduate School professor **Alana Cattapan** tackles the recent Ontario court decision that embryos can be understood as “property,” and points out where the ruling goes against previous legal decisions.

[**How to improve farm safety for kids**](#)



Catherine Trask, USask Canada Research Chair in Ergonomics and Musculoskeletal Health, and **Valerie Elliot**, research assistant at the USask Canadian Centre for Health and Safety in Agriculture, write in [*The Conversation Canada*](#) that farm parents engage in a complex decision-making process when it comes to involving their kids in farming-related work. By better understanding those decisions, they hope to find strategies to prevent harm.

[**After the Humboldt crash: truck driver health and training must be a priority**](#)



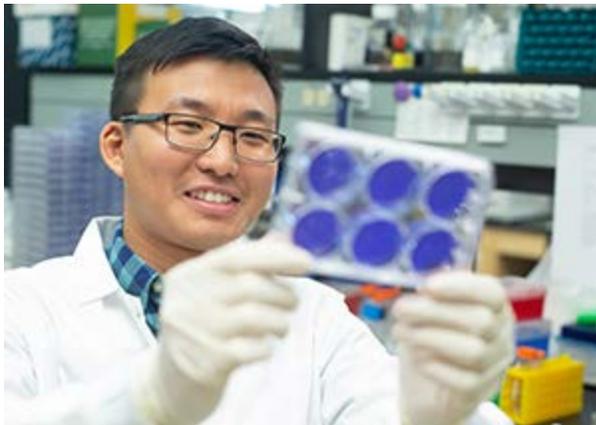
Writing in [*The Conversation Canada*](#), USask School of Public Health professor **Alexander Crizzle** argues that truck drivers are exposed to many risks affecting their health and their ability to drive safely due to the nature of the job and the job market, exacerbating the shortage of drivers. He says trucking company policies need to be changed to incorporate more flexible hours and more intensive training.

[**Write about your own research in The Conversation**](#)

Want to reach a broad audience with your research? Consider submitting an item to the Conversation, an academic journalism hub of which USask is a founding member. [Read more here](#) and [get in touch with Sarah Peiris](#).

Young Innovators

[Innovative research finds influenza detection system in body](#)



PhD student **GuanQun Liu**, supervised by **Yan Zhou** at the USask Vaccine and Infectious Disease Organization — International Vaccine Centre (VIDO-InterVac), has found a unique “sensor” mechanism inside cells that enables the immune system to recognize influenza, a finding that may lead to improved vaccines in the future. In a paper published last week in *Nature Communications*, Liu and Zhou identified a protein sensor which serves as a “patrolling” system for Influenza A. [The research is featured in *The Young Innovators* series, a partnership with *The Saskatoon StarPhoenix*.](#)

A Green and White Globe

Māori Scholars Performances

Kahutoi Mere
Te Kanawa

Dr.
Tawanga
Nopera

Presented by UNIVERSITY OF SASKATCHEWAN THE UNIVERSITY OF WAIKATO Remai Modern

Maori scholars to visit USask

On Aug. 31, USask will welcome a 12-member delegation from University of Waikato, New Zealand, for *Wahkotownina é osihtáhk / Creating Relationships*, a series of presentations, discussions and performances.

[From 8:30 a.m. – 12:30 p.m. in the Quance Theatre \(Room 1003\) in the Education Building](#), five faculty members from each university will give brief presentations on their research and its Indigenous context and narrative, followed by a Q-and-A. [Register here.](#)

[From 2 p.m. to 4 p.m., at the Remail Modern art gallery](#), Maori scholars and artists Kahutoi Mere Te Kanawa and Tawhanga Mary-Legs Nopera will give two free public performances. The event is open to the public, and hosted by the USask, the University of Waikato, and Remail Modern. [Register here.](#)

Undergraduate Research



Aug. 17th - USRA Summer Social and Poster Competition

Join almost 60 undergraduate student researchers as they present their research, scholarly and artistic works – fruit of their summer labours - in poster format on Friday, 9:30 a.m. – 4:30 p.m. in the College of Agriculture and Bioresources Building Atrium. Top prizes for the three most impressive posters will be announced at 3:30pm.

We want your feedback! [What do you think of Discovery Digest?](#)

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