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DISCOVER RESEARCH AT TRU | 2015-16



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Associate professor of biology, Dr. Naowarat (Ann) Cheeptham, inside her microbiology lab at TRU. Cheeptham holds a research grant from the United States Fish & Wildlife Services to advance the search for effective biological control options against the fungus that causes White Nose Syndrome (WNS) in North American bats. Full story on Page 5.

Striving for excellence in community-based research

On behalf of Research and Graduate Studies I am pleased to report on the continuing implementation of Thompson Rivers University's five-year Strategic Research Plan (SRP) — and to identify areas of focus for the coming year, as we work together to construct the research-informed university that we have collectively designed.

The SRP offers a shared articulation of our strategic vision for integrating research, scholarship and creative inquiry into all areas of the university. During the first year we focused on capacity development, knowledge mobilization, and student research training. We successfully filled four Canada Research Chair (CRC) openings, which represents a \$2-million investment from the CRC Secretariat, along with an additional \$241,000 infrastructure investment from the Canada Foundation for Innovation (CFI). In addition, we secured approval for two new graduate programs in economics; we supported the development of new research centres; we paid special attention to the mentoring of undergraduate research training, with the introduction of new programs including the Indigenous Knowledge Makers Program, the Research Ambassadors Program, and the Graduate Student Research Mentorship Fellowships. TRU boasts a comprehensive set of assets — including trades training, Open Learning, TRU World, vocational laddering opportunities, and outstanding faculty in all traditional academic areas. The interdisciplinary research potential of these assets produces impressive results.

The interdisciplinary ethos fostered by the absence of academic silos at TRU is inspiring, and our relationship to the communities we serve is remarkable. The people of the Interior of BC see TRU as their university; and we are intent on developing research partnerships with neighbouring universities, enabling us to mobilize our collective research capacity for the benefit of individuals, community groups and organizations, non-profits, Aboriginal communities, cultural groups, businesses and industry. Productive partnerships are



Dr. Will Garrett-Petts, Associate Vice-President of Research and Graduate Studies.

vital to the research community at TRU. Our researchers, who are uniquely positioned to find solutions to community-specific problems and industry-driven challenges, find technology transfer and commercialization support through the Director of Research Partnerships and Enterprise Creation. A further example of our commitment to partnership development involves the co-creation (with the United Way) of a Knowledge Mobilization Officer as a liaison for community-engaged research.

We will always be a university that puts its students and a commitment to teaching excellence first, but provision of research opportunities and the celebration of research engagement is in no way antithetical to those principles. Indeed, in a small university, the development of community-based research initiatives and enhanced support for student research are extensions of excellent teaching practice.

I am delighted to share with you this annual report, offered as a reflection on some of the accomplishments of our faculty, students, and community research partners over the last 12 months.

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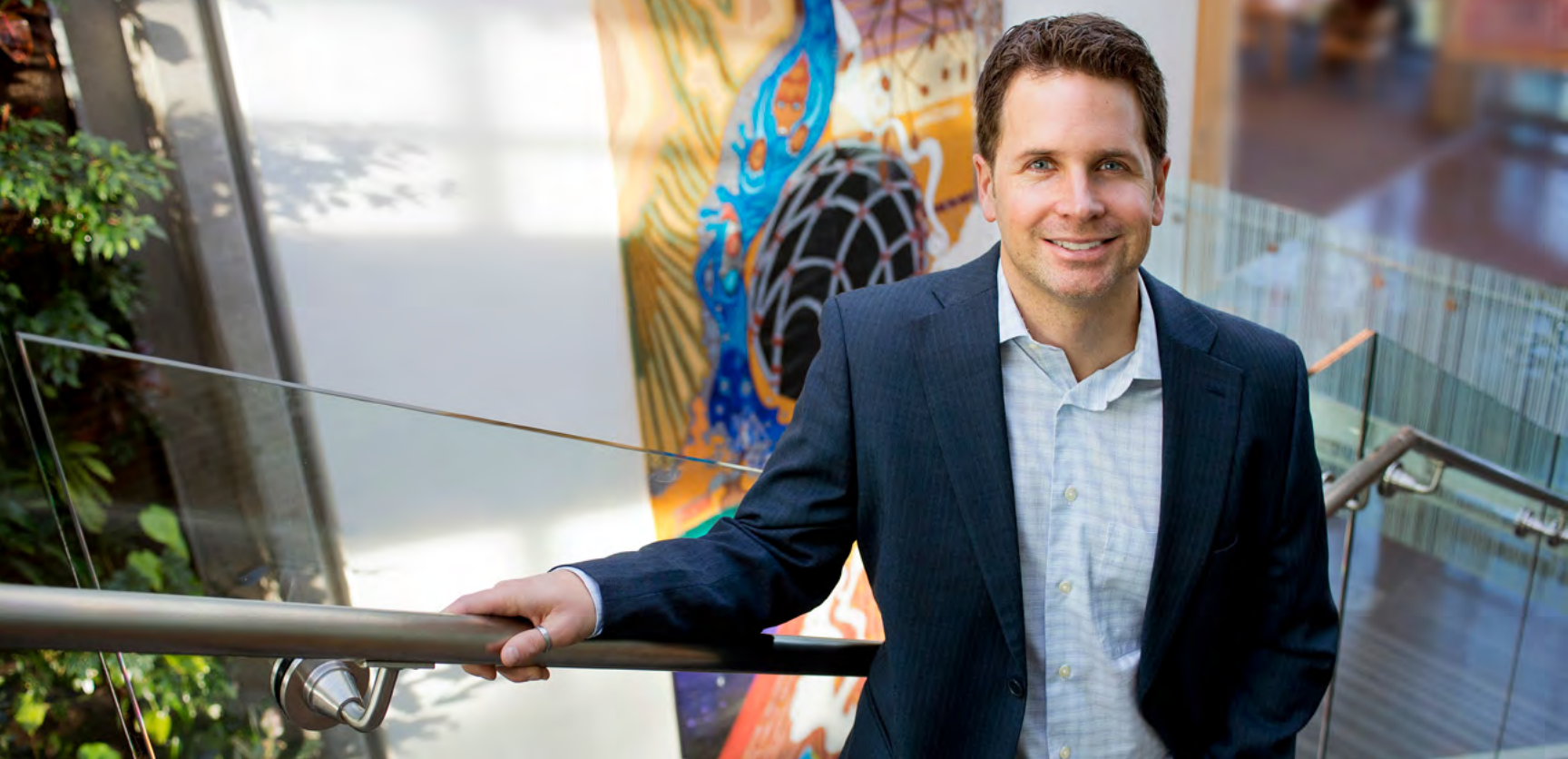
Lori Cooper
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Dr. Courtney Mason

A focus on food, health and the rural North

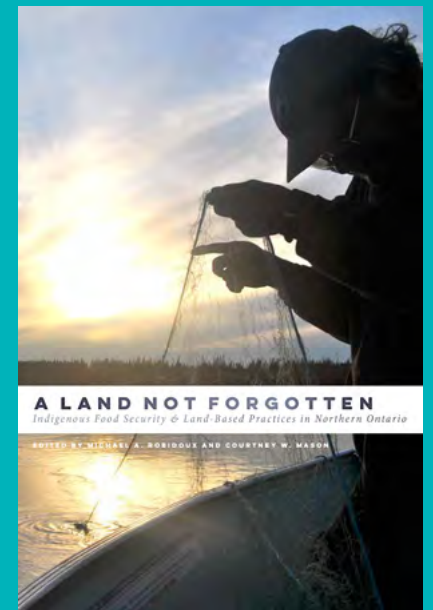
Dr. Courtney Mason, Canada Research Chair in Rural Livelihoods and Sustainable Communities, began working alongside the people of the Stoney Nakoda First Nation in Morely, AB while completing his PhD. His goal was to better understand Indigenous displacement from national parks, and how they negotiated a return.

Mason found that while Banff's burgeoning tourism industry was the cause of displacement, it was also one of the ways the Nakoda regained entry to the park: they were invited to perform for tourists, and used that return to gain access to sacred spaces inside the park.

From that research, Mason authored *Spirits of the Rockies: Reasserting an Indigenous Presence in Banff National Park*, and says that the relationships he formed while completing this research were transformative. He began asking new and different questions that have implications for Indigenous communities across the country, specifically, how histories of displacement are connected to contemporary issues in community health.

Today, much of his research focuses on answering questions about food, health and the rural North. For a community to thrive, he says, its people must have access to healthy food, and for most northern communities the cost of having food shipped in puts it out of reach for most.

This year, Mason was awarded a Social Sciences and Humanities Research Council (SSHRC) Insight Development Grant for a project that looks beyond our borders, and compares tourism's displacement of Indigenous people in Canada, with the experiences of Indigenous people in New Zealand. The results of his research are poised to influence decisions concerning the development of Indigenous lands and resources, which will have national and global relevance, as well as significance at the grassroots level.



Indigenous food security

Dr. Mason co-edited a soon-to-be-released book about Indigenous food security. "For a community to thrive, its people must have access to good, healthy food," he said, adding that for many rural, northern Indigenous communities, this is not the case.



Dr. Ann Cheeptham

Searching for a solution to save little brown bats

TRU microbiologist Dr. Naowarat (Ann) Cheeptham and Wildlife Conservation Society of Canada biologist and TRU Adjunct Professor, Dr. Cori Lausen have been awarded a \$75,000 USD research grant from the United States Fish & Wildlife Services to advance the search for effective biological control options against *Pseudogymnoascus destructans*, or Pd, the fungus that causes White Nose Syndrome (WNS) in North American bats.

The goal of the research project is to identify new microbes and viruses that inhibit the growth of Pd, increasing the options available for WNS mitigation and the likelihood of achieving effective and safe treatment of WNS for bat

species across North America.

The deadly fungal disease that causes WNS has already killed millions of North American bats since it was first documented in New York in 2007.

“This is a huge collaboration. We’re working with the Wildlife Conservation Society of Canada and with B.C. and Alberta speleological federations,” said Cheeptham, who is perhaps best known for her exploration of cave microorganisms and their potential for new drug development, which has been profiled internationally, through CBC’s *the Nature of Things*, Bloomberg TV and Al Jazeera.

Research partnership leads to bat cave

New Gold, operators of the New Afton copper and gold mine west of Kamloops, has a rich history of supporting research at TRU. New Gold has offered TRU researchers the use of a bat hibernaculum (bat cave) on the site to identify new microbes and viruses that inhibit the growth of the fungus that causes White Nose Syndrome in little brown bats. As well, the mining operation pledged \$200,000 toward the creation of an NSERC Industrial Research Chair in Ecosystem Reclamation. The Real Estate Foundation also committed \$150,000 to the initiative, and Genome BC pledged a further \$250,000.



Dr. Lauchlan Fraser



Reflection of the Prairie Sun

Camera Obscura creates sense of 'wonder and joy'

It has been a monumental year for Visual Arts Professor Donald Lawrence's camera obscura research project.

In August, a new permanent public artwork was unveiled and a national touring exhibition announced during The Prairie Sun Project, hosted by the University of Lethbridge at its Coumts Centre for Western Canadian Heritage in Nanton, AB.

Lawrence's latest creation — an 80-year-old grain bin-turned camera obscura — was the centre of attention. The camera obscura, 'dark room' in Latin, works by letting light enter through a pinhole into a dark space and projecting an image onto the table below.

One look at the grain bin and Lawrence said he knew it was a perfect home for his artwork. "The size and shape is something that would have existed as a public camera obscura in Victorian times," he said. The project featured many of the artists who were involved in Lawrence's SSHRC-funded 2015 Midnight Sun Camera Obscura Festival, which took place in Dawson City, Yukon.

University of Lethbridge Art Gallery Director Josephine Mills said: "Part of what I like about (Lawrence's) work is how art and science can work together, which goes back to the Renaissance idea where artists and scientists are really the same people. The other part is that it is really fun. This artwork is about play and about experimentation."

The camera obscura invites people in to actively experience it.

"That's the most effective artwork. You want to leave people with a sense of wonder and joy," said Mills.



Donald Lawrence was joined by several TRU students and alumni when he unveiled a new permanent public artwork at the University of Lethbridge's Coumts Centre for Western Heritage this summer.



Nicole Schabus



Dr. Janna Promislow

Determining Access

Implementing Indigenous governance over lands & resources

Nearly two years after the Supreme Court of Canada issued the first declaration of Aboriginal title in Canadian history in *Tsilhqot'in Nation v. British Columbia*, there are still many questions left unanswered about how to implement this decision and the impact it will have on resource development in Canada.

In February, Dr. Janna Promislow and Nicole Schabus spearheaded a groundbreaking conference that drew leaders from the Interior Alliance — which is made up of five Indigenous nations in South and Central British Columbia — along with leaders from other Indigenous communities, and scholars in Aboriginal law and intellectual property.

Supported by a SSHRC Connection Grant, *Determining Access, Theory and Practice in Implementing Indigenous Governance over Lands and Resources*, was designed to facilitate and support the Interior Alliance discussions about Indigenous governance.

The conference provided a venue for information sharing and for addressing the challenges faced by the Indigenous groups that are now navigating this new legal landscape.

Speakers included Chief Russell Myers Ross of the Tsilhqot'in National Government, Guujaaw, a well-known activist and member of the Council of Haida Nation, Arthur Manuel from the Indigenous Network on Economies and Trade, and 2014 Trudeau Scholar Aaron Mills.

"There is an expectation that things will evolve towards recognizing Indigenous governance, particularly with regard to lands and resource development," said Promislow.

There are a number of ways to have Indigenous rights recognized, Promislow explained, but often those channels are inadequate and time consuming. "This (conference) allowed us to bring in speakers from elsewhere in BC and from other jurisdictions who can speak to

experiences in moving beyond traditional legal channels to implement Indigenous governance — those are the types of conversations we want to help create."

"We heard from people who have hard questions about controlling access to lands and resources in Indigenous territories," added Schabus.

"Implementing Indigenous governance over lands and resources is a necessity and in the interest of all, including government and industry, who need to engage with Indigenous peoples or who otherwise will be faced with ongoing legal and economic uncertainty. As academics we are happy to take our guidance from Indigenous peoples and support them by addressing some of the legal and strategic questions they have," she said.

"This will inform our research, but more importantly it will support Indigenous governance by sharing experiences that come from on-the-ground."

Research storytelling



TRU undergraduate researcher named to Top 25 in Canada

Ryland Fortie, a fourth-year visual arts student, was named one of the Top 25 finalists in the SSHRC 2016 Storytellers challenge.

The annual contest asks postsecondary students from across the country to demonstrate — in three minutes — how SSHRC-funded research is making a difference in the lives of Canadians. Fortie's video, *The Camera Obscura Project: Optics, Learning and Play in Canada's Wilderness*, details his journey as a research assistant on the project, which is led by Visual Arts Professor Donald Lawrence.

Fortie's video was selected from among nearly 200 entries by 30 expert judges in Canada and abroad. He went on to compete in the Storyteller's Showcase at the 2016 Congress of the Humanities and Social Sciences at the University of Calgary.

"This is probably one of the bigger platforms I've had to share research and talk about my interests. It was a great experience to familiarize myself with sharing in this capacity," he said.

"Being involved with the SSHRC Storytellers program was an experience for me that framed the interesting research I was undertaking.

"As an artist, it was a unique experience. I felt privileged to share something a little different with researchers across disciplines, and seeing how different topics and concerns relate across the board for students, researchers and people in general."

Ryland Fortie, one of the Top 25 SSHRC Storytellers



Going abroad for Alzheimer's research

Jagdeesh Uppal spent three months studying at the Indian Institute of Technology (IIT) in Roorkee, India, thanks to a Mitacs Globalink Research Award.

While at IIT, Uppal, a fourth-year chemical biology student, joined a research project led by Dr. Kalyan Sadhu called "Development of fluorogenic sensor for imaging of Amyloid-B plaques."

The project focused on the early detection of Alzheimer's disease. The IIT research aims to develop a fluorescence probe that will attach to amyloid-B plaques, which are known to cause Alzheimers. The probe will light up plaques under a specific wavelength, and it is hoped that in future this will allow for quick detection of Alzheimer's disease in patients.

Jagdeesh Uppal, Mitacs Globalink Research Award recipient



Gold medal research leads to future collaboration

When Master of Science in Environmental Sciences graduate Aaron Coelho reflects on his academic life, it becomes clear that his determination to make the most of every opportunity has been key to his success.

During spring convocation, Coelho was awarded the Governor General's Academic Gold Medal — the highest achievement offered to Canadian graduate students. Coelho worked alongside Dr. Wendy Gardner and Dr. Tom Pypker investigating the decline in the number of ponds in British Columbia grasslands, an issue of vital importance to the ranching industry.

"In BC, one per cent of our land base is grassland, but 99 per cent of those grasslands are working rangelands, and over the last 15 to 20 years ranchers had been noticing the disappearance of surface water," explained Coelho

By comparing historical aerial

photos to modern satellite images, Coelho was able to determine that the number of small ponds and surface water area in BC's Southern Interior grasslands has declined by more than half. Grassland ponds are vital to maintaining a healthy ranching industry, as cattle only graze within close proximity to a source of drinking water.

Coelho's research continues through his work as an environmental consultant with Urban Systems Ltd. With funding from the Climate Action Initiative's Farm Adaptation Innovator Program, Urban Systems and TRU have partnered to develop a climate change impact risk assessment tool for ponds used as livestock water sources in BC's Southern Interior grasslands. This research will show range users which ponds are at risk due to future climate change, allowing for proactive measures to be taken.

Aaron Coelho, 2016 Governor General Gold Medal winner



Rattlesnake research for the win

A great topic and a lot of confidence were keys to Jared Maida's 2016 Three Minute Thesis win. The Master of Science in Environmental Science student's presentation, "Dealing with Disturbance: How do rattlesnakes cope with change," entertained and educated the packed house.

"It was a great chance to practice promoting and communicating my work," he said.

The venue was filled to capacity for the event, which saw Master of Business Administration student Tanya Thomas awarded Second Place and People's Choice for her presentation, "Taking the Confusion out of the Fusion: A Study of the Impact of Intercultural Communication on Multicultural Teamwork."

Judges included Kamloops Mayor Peter Milobar, radio host Cheryl Blackwell and Western Canada Theatre General Manager Lori Marchand. Maida represented TRU at the Western Canadian Regional 3MT hosted by UBC-Okanagan.

Jared Maida, TRU's 2016 Three Minute Thesis winner



Shining a spotlight on the ‘good-enough mother’ in child welfare practice

In 25 years of research on European and North American child welfare practice, little is known about the factors that help parents — mostly mothers — regain and retain custody of their children.

Natalie Clark, associate professor in social work, and Dr. Stephanie Bryson of Portland State University, aim to change this narrative with their SSHRC-funded research project: *How do mothers and caseworkers develop ‘care capital’?: Testing an asset building framework in child welfare practice.*

The researchers have partnered with collaborators from the provincial Ministry of Child and Family Development on a project that will focus on success stories, inviting child welfare-involved mothers to share their journeys to regain custody of their children, while also interviewing the case workers involved.

Clark brings her lens as an Indigenous

researcher to the project, adding depth and focus to an issue that impacts a community that is over-represented in the system.

“We’ve endured many things — colonialism, sexism, racism. How do we decide if a mother is good enough, and what interaction between the mother and social worker took place to allow this to happen,” she asked.

“We know a lot about what’s going wrong, but what are the conditions that exist when things go right?”

Clark has held several grants exploring Indigenous social work field education and Indigenous youth health.

“I’ve heard it numerous times from within Indigenous communities that they don’t want any more research that focuses on risk — they want to look at what’s working.”

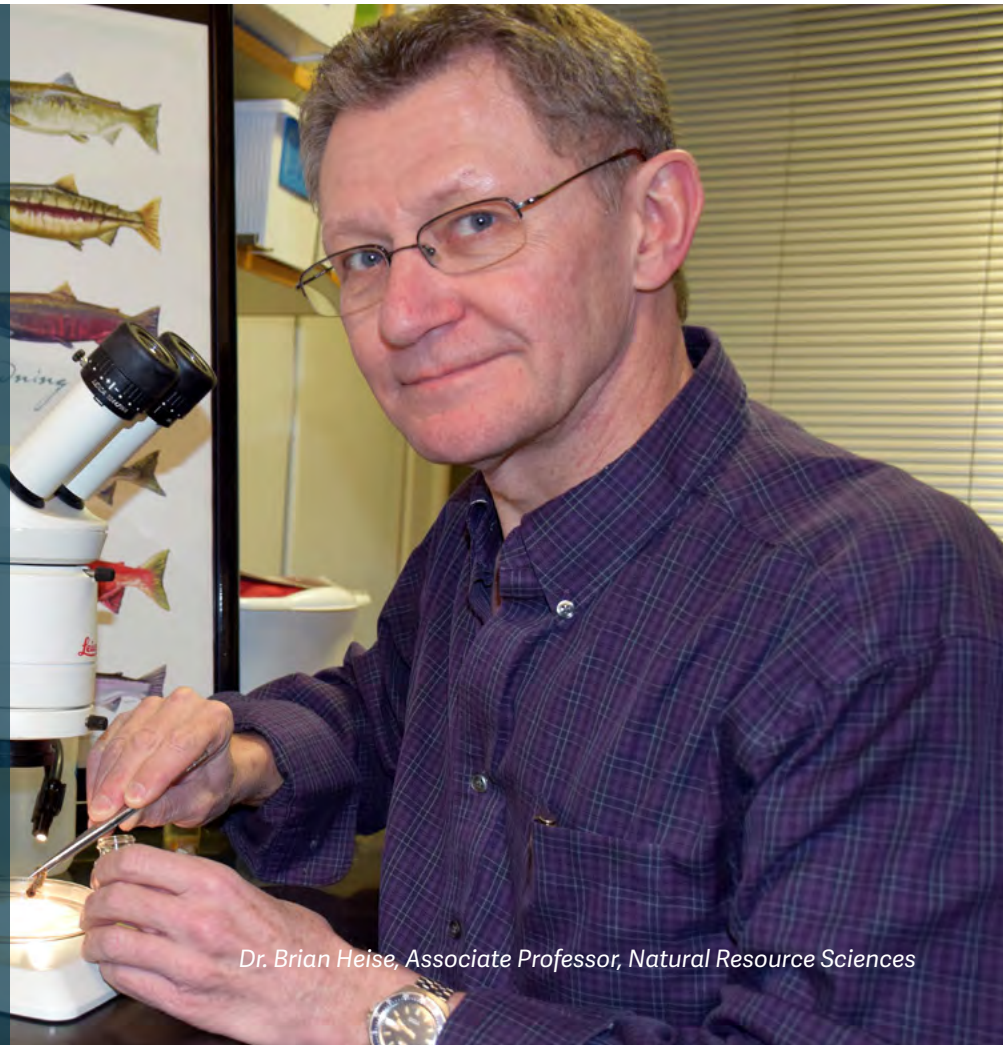
Supported by a SSHRC Insight Development Grant, Natalie Clark, associate professor in Social Work, explores reunification success stories within the child welfare system.

TRU becomes provincial hub for invasive species research

Preparations are underway for TRU to co-host the 2017 Invasive Species Research Conference, which will welcome invasive species researchers and practitioners from across the Pacific Northwest to campus from June 20-22.

Dr. Brian Heise, associate professor in Natural Resource Sciences, has been appointed Chairman of the Invasive Species Council of BC (ISCBC), and is excited to play a role in the development of national, research-based policy. According to Heise, while the ISCBC has long played a key role in educating the public about invasive species, he hopes to expand the council’s mandate.

ISCBC has identified TRU as a provincial hub for invasive species research. Currently, TRU is home to experts in everything from northern pike and walleye — invasive fish that pose a threat to juvenile salmon — to the invasive European fire ant that is an aggressive and prolific breeder, with colonies showing up throughout BC’s Lower Mainland and Vancouver Island.



Dr. Brian Heise, Associate Professor, Natural Resource Sciences

Public health at the heart of strategic plan in nursing

Making a Difference: Scholarship and Research in the School of Nursing at TRU, 2016-2021 was launched earlier this year, setting the strategic priorities for nursing research.

“Nursing research is diverse because of the very nature of the sphere of influence of nursing at levels of patient, family, community and populations,” said Dr. Donna Murnaghan, Dean of Nursing.

Research conducted by TRU nursing faculty has the potential to influence health policy, improve delivery of care and help attract and prepare the next generation of nurses to fill much-needed nursing positions in rural areas, particularly in Aboriginal communities across the province.

The theme of Indigenous Health builds on current and past research spanning human resources, cultural competence and cultural safety. Leadership and Policy

responds to the strong need for future leadership as many experienced nurses in the province approach retirement. Research on Community Health Nursing and Population Health brings together rural health, women’s health, seniors’ health and palliative care, and many other areas where new knowledge gained will directly benefit the public.

With the shortage of nurses projected to increase, accessibility to education is another way nursing research serves communities as well as the next generation of researchers.

“We are excited about the current and potential growth that will be articulated as faculty members work as teams in developing, supporting, and enhancing research capacity into the future,” said Murnaghan.



Dean of Nursing Dr. Donna Murnaghan and faculty member Tatiana Little during the announcement of the new strategic research plan.



Dr. Susan Duncan, Professor, Nursing

Public health research fosters healthy schools

Public health researchers at TRU believe the best way to promote health and prevent chronic disease is through developing partnerships within the community — specifically with schools. A comprehensive school health approach goes beyond health education to focus on how the health of a school community as a whole can be enhanced.

“Intervening in early life is the time to make a difference. If you can create healthy schools you can create healthy kids. They spend 25 to 30 hours per week there — the impact is not small,” said Dr. Susan Duncan, Professor in the Faculty of Nursing.

Supported by a grant from Interior Health, Duncan is working with a team of researchers to implement comprehensive school health initiatives. The project will see researchers work in rural and urban district elementary schools to develop Health School Teams. These teams will then assess a school’s health and establish unique health goals.

Monica Sanchez-Flores presented *Complex identities and compassion in equity training* at the CAUCE CNIE Conference, Winnipeg, MB

Tesh Dagne presented *The Intersections of 3D Printing Technology with Intellectual Property Law* at the Intellectual Property and Information Law Conference at Cambridge, UK

Susanna Fawkes gave the workshop *Teaching Cultural Identity: Stuart McLean's Vinyl Cafe* for the Tri-TESOL Conference in Des Moines, WA

Robert Hanlon presented *Avoiding Bribery in Asia* at the Education for Integrity Conference, Toronto, ON

John Hull and Anne Terweil presented *Factors Influencing Employee Retention at Mountain Resorts: The Case of Sun Peaks, Canada* at the International Competence Network for Tourism Research and Education, Sheffield, UK

Catherine Ortnier co-presented *Believing is Doing? Weighing the Costs and Benefits in Responding to Emotionally Evocative Situations* at the Canadian Society for Brain, Behaviour and Cognitive Science, Ottawa, ON

Courtney Mason co-presented *Land-Based Food Programs as a Response to Indigenous Food Security Issues in Fort Providence, NWT* during the Changing the Menu Conference of the Heart and Stroke Foundation of Canada, Montreal, QC

Tracy Penny Light presented *Building Bridges: Connecting Curricular and Co-Curricular Learning with ePortfolios* at the Association for Authentic Experiential and Evidence-Based Learning Conference, Boston, MA

Carol James presented *Retesting: The good, the bad and the ugly* at the National College Testing Association annual conference, St. Pete Beach, FL

Karen Densky presented *Creativity in Language Teaching as a Quality Factor* at the Congreso Internacional en la Enseñanza de Lenguas, Acapulco, Mexico

Andrew Park presented *A Decision Support System for Crowd Control Using Agent-Based Modeling and Simulation* during the IEEE International Conference on Data Mining in Atlantic City, NJ

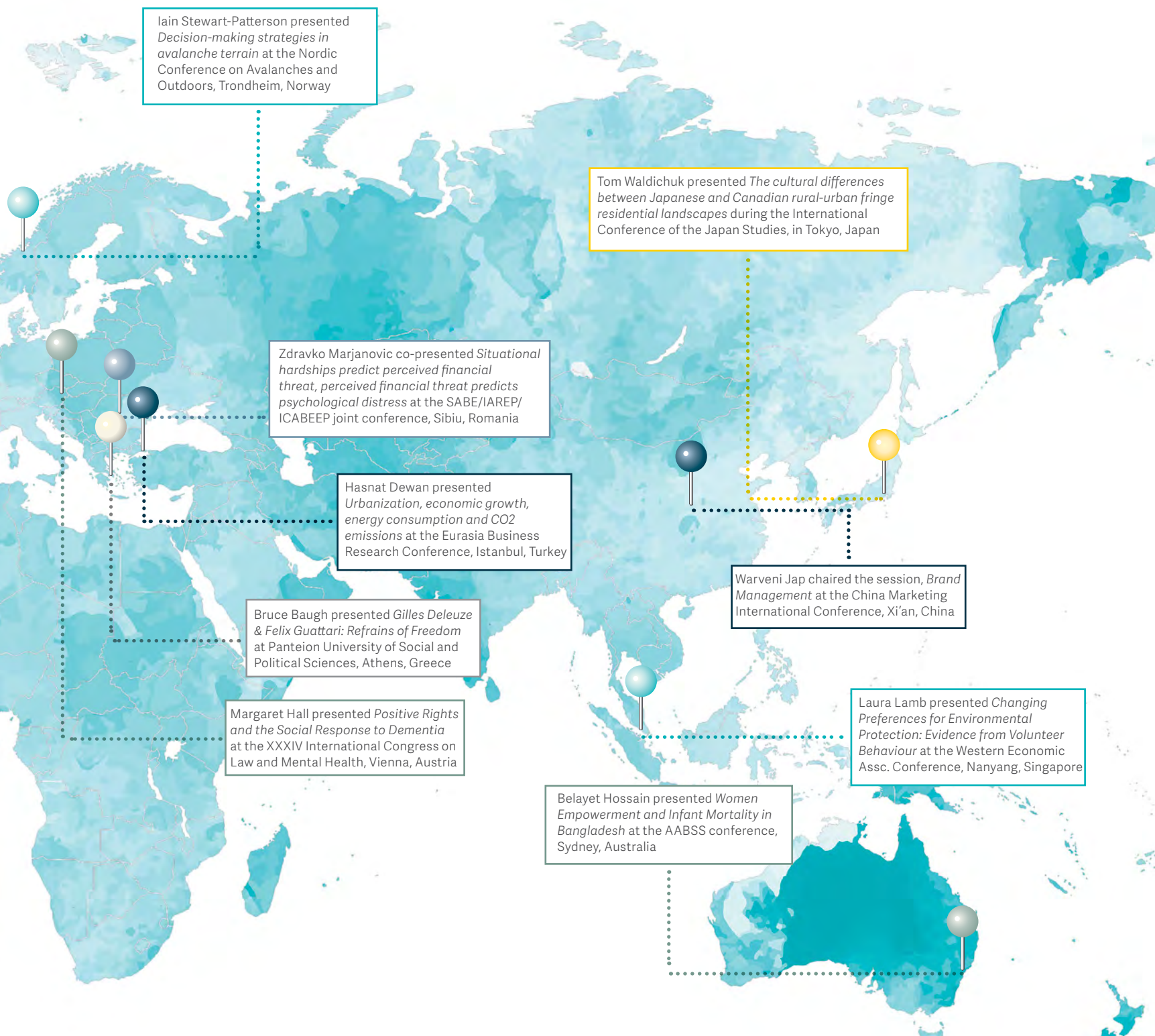
Airini gave the keynote presentation, *Remembering who we are: Beyond the myths of diversity and inclusion* at the Critical Education Summit, Orange, CA

Ruby Dhand gave the keynote, *Are Disability Laws Really Working?*, at the Pacific Rim International Conference on Disability and Diversity, Honolulu, HI

Laura Doan presented *An Investigation into the Needs and Experiences of Beginning Early Childhood Educators in British Columbia* at the European ECE Research Association Conference, Barcelona, Spain

Margaret Patten and Cindy Piwowar presented *I want to take risks and challenge myself* at the Association for Early Childhood conference in San Jose, Costa Rica

Kyra Garson was an invited plenary speaker on *Internationalization of the curriculum and Indicators of Internationalization* at the Conference of the Americas on International Education, Quito, Ecuador



World-class research at work

One of the main objectives of TRU's Strategic Research Plan (SRP) is to support and build upon existing and emerging research strengths in order to develop national and international leadership in those areas, with the goal of making a real difference to the world, both in terms of providing excellent opportunities for attracting and training the best students, and through the application of research in ways that improve the quality of life for all.

Another overarching goal of the SRP is to facilitate the development of partnerships with communities, scholars, cultural organizations, industries and institutions, and to do this on a global scale. This map highlights just a few of the many ways TRU scholars are actively mobilizing their knowledge nationally and internationally, and in the process, developing partnerships and connecting with colleagues and students around the world.



Survey aims to decode youth vote

Dr. Terry Kading (political science) is supervising an Elections BC-funded project designed to gain insight into why so many young people don't vote, and what motivates those who do. Students have taken the lead on the research project, surveying 400 of their peers and analyzing the results.



The history of unbelief in Canada

Dr. Tina Block (history) authored The Secular Northwest: Religion and Irreligion in Everyday Postwar Life, and has expanded her research nationally. Her SSHRC-funded project explores the lives of Canadians who denied, doubted or drifted away from religious belief between 1950-1979.



New book about human security

Dr. Robert Hanlon (political science), co-wrote Freedom from Fear, Freedom from Want: An Introduction to Human Security, a book that explores a new framework for understanding non-traditional security threats that followed the end of the Cold War.



Working to make the average person healthier, right into retirement

To date, most of Dr. Mark Rakobowchuk's research subjects have been young and fit, but the assistant professor of physiology is excited to branch out, expanding his research to include older adults. His goal is to help older adults improve movement through the golden years.

Rakobowchuk's passion for fitness began early, and as an avid runner, he always found himself focusing on the science behind the success. "I quickly realized that I wasn't that great at track and field, so I had better use my brains to pay the bills," he joked.

It was while at McMaster University completing his graduate studies in human biodynamics and cardiovascular and exercise physiology that he found his passion.

"It isn't that important to make an elite athlete better. What's really important to me is to make the average person a little bit healthier."

With the support of an NSERC Discovery Grant, Rakobowchuk explores risk and disease by identifying how blood vessels develop and grow. "When we increase blood flow through exercise we stimulate capillary formation, so that increased blood flow tends to get more blood vessels forming around muscle tissue," he explained.

"As you age, the number of blood vessels and capillaries around muscles start to disappear. If you don't have good oxygen delivery to the muscles, then they fatigue more easily, making ordinary tasks more difficult."

If he can work with older adults and confirm that microvesicles created during exercise are beneficial for people who are on aspirin therapy or using other anticoagulants, then perhaps he can find a way for them to maintain good health, without involving pharmaceuticals.

Supported by an NSERC Discovery Grant, Dr. Mark Rakobowchuk is expanding his exercise physiology research with the goal of improving movement as we age.



Book on Fondane gets New York release

Dr. Bruce Baugh (philosophy) introduced, edited and translated Existential Monday: Philosophical Essays of Benjamin Fondane, which launched in New York in June. "Fondane is not an academic philosopher at all, but an essayist — a philosopher, but also a poet," said Baugh.



Conservation implications

Making the most out of a terrible situation — that's how Dr. Matt Reudink (biology) described his research into a mass mortality event of Vaux's Swifts, an aerial insectivore experiencing population declines. Reudink's research was published in The Condor: Ornithological Applications.



Forest fire strategies assist in Nepal

Dr. Wendy Gardner and Dr. John Karakatsoulis (Natural Resource Sciences) led a team of researchers to Nepal where they spent two weeks developing effective forest fire management techniques. The project was funded by the Canadian International Development Research Centre.



Dr. Wendy Hulko, Associate Professor, Social Work

Reinvigorating aging and health research

Canada has an aging population, but the setting for most research that addresses the health care needs of this group takes place in large urban centres.

That's what makes the latest project being undertaken by a team of TRU researchers and students so unique. The team traveled to 10 communities over the summer to find out what services older adults require to maintain good health, long term, in rural British Columbia. The project, "Researching Older Adults' Repositioning (ROAR): An Exploratory Study of Older Adults' Views on Health Care and Restructuring in BC's Central Interior," is funded by an Interior Health (IH) Evidence Informed Practice Grant, and is led by Dr. Wendy Hulko and Dr. Noeman Mirza, along with co-investigator and IH Practice Lead Lori Seeley.

The ROAR project has reinvigorated the Aging and Health Research Centre, which serves as a focal point for aging related research in the Central Interior.



Dementia support through law reform

Margaret Hall (law) is conducting research into a Canadian Guardianship Tribunal Model aimed at determining the most appropriate way to care for individuals suffering from dementia alone. Dementia-related needs are often social issues that can be addressed through law reform.



Russia's history in a single building

Dr. Wilson Bell (history) presented his research on Stalin's Gulag at the University of Geneva. He then spent several weeks in Russia conducting preliminary research on his SSHRC-funded project, 44 Lenin Avenue: Siberia's tumultuous 20th century as told through its most remarkable building.



Solutions to improve CIHR peer review

Dr. Rod McCormick, BC Innovation Chair in Aboriginal Health, was one of 50 researchers invited to participate in an emergency meeting in Ottawa designed to address concerns related to the grant application and peer review process of the Canadian Institutes of Health Research.



Examining the role of the East African Court of Justice in economic integration

Dr. Richard Oppong, associate professor of law, is embarking on a SSHRC-funded research project examining the role the East African Court of Justice (EACJ) plays in economic integration, and strategies to enhance its role.

The project, "Regional and National Courts and Africa's Economic Integration: A Study of the East African Community," has global reach, and is supported by a co-applicant from the University of New Brunswick, and collaborators from the University of Western Cape and the University of Nairobi.

The EACJ is designed to resolve disputes in an economic integration organization — the East African Community (EAC) — with the goal of facilitating the free movement of goods and people across borders, a process deemed essential for economic development of the region. Despite being modeled after the highly successful Court of Justice of the European Union, the

EACJ has struggled to advance economic integration within the EAC. The court has widened its mandate to the realm of human rights, national security and domestic governance issues, resulting in a potential backlash from the member states of the EAC.

"The need to remove obstacles to the free movement of people, goods and capital in an integrated economy is as important as the freedom from arbitrary arrest and political detention," said Oppong.

Next year, Oppong and his research team will travel to East Africa — Kenya, Tanzania, Uganda, Burundi and Rwanda — conducting interviews and collecting data.

"It is my hope that the project can serve as a springboard for a broader program of future research on the eight functioning regional courts in Africa."

Dr. Richard Oppong will travel to Kenya, Tanzania, Uganda, Burundi and Rwanda next year, collecting data for a project that explores the role of the East African Court of Justice in economic integration.



Beckett influence in pop culture

With the debut of his second work on novelist, playwright and poet Samuel Beckett, Dr. Peter Murphy (english) solidifies his status as an eminent Beckett scholar. Beckett in Popular Culture: Essays on a Post-modern Icon, was co-edited by Nick Pawliuk, and features writing from several TRU faculty.



Identity politics and Afrodescendancy

Alejandro Campos Garcia (sociology) co-edited Identity Politics in a Time of Afrodescendancy: Self-identification, Ancestry, Visibility and Rights, and was an organizer of the Harvard symposium, Afrodescendants: 15 Years after Santiago.



Exploring postpartum depression

Canadian immigrant women suffer from postpartum depression in disproportionate numbers compared to the general population. Dr. Joyce O'Mahony (nursing) has partnered with Interior Health to explore the reproductive and mental health services available to these women.

Change point detection research has impact across all sectors

Dr. Xiaoping Shi doesn't have a crystal ball, but the work he does as a statistician is helping to develop mathematical tools that allow us the ability to make viable predictions about the future, and possibly alter its outcome.

Shi, who is supported in his research by an NSERC Discovery Grant, studies change-point detection, which refers to the moment when observations obey two different models: before and after.

Being able to quickly establish a change point has implications across sectors, explained Shi. The basis of his research involves the development of a fast and accurate method for detecting change point using a specific data set.

Shi, who completed his PhD at York University in 2011, said one of the reasons he is so interested in change point detection theory is because of potential for impact across sectors, from finance and medicine, to environmetrics and quality control.

"As a statistician I have to learn a lot about all the fields I'm working in, and about all the datasets," he said. One of his current research projects involves establishing the change point for the division time of cells. If Shi can determine the normal rate of cell division, then the method could quickly reveal abnormal, or cancerous, cell division time.

"Maybe if we can see quickly that the division time is not normal, then we can identify the abnormality and make the cell growth stop," he said, adding that applying change point detection theory in a medical setting would be fast and accurate.

"We can't predict the future, but our models change from time to time and show us things we don't want. If we can see ahead, we can try to avoid negative results."



Dr. Xiaoping Shi's research aims to establish the change point for the division time of cells, which could pinpoint abnormal or cancerous cell division time.



Using Ontario's emissions trading policy to guide a national strategy

In October, Prime Minister Justin Trudeau announced that Canadian provinces have two years to adopt a carbon pricing scheme or the federal government will step in and impose one for them. "This is really good news for the BC economy as it will bring the carbon prices in other provinces up to our level," said Dr. Joel Wood, assistant professor in economics.

"A minimum carbon price imposed by the federal government is a big step forward for Canadian climate policy. It will help minimize the negative effects reducing emissions will have on the economy. And allowing the individual provinces to decide what to do with the resulting revenue from the tax is a smart move," he explained.

Wood was recently awarded a SSHRC Insight Development Grant to evaluate Ontario's emissions permit trading policy.

Wood is investigating whether corporations act strategically in an effort to increase their initial allocation of carbon permits, and hopes to discover whether emissions

trading resulted in further pollution reductions than would have occurred under more traditional, less flexible forms of pollution control, or whether the current policy has exacerbated pollution 'hot spots' within Ontario.

Results from this work will signal whether policy adjustments are needed in the future and will have an impact on the types of carbon pricing schemes other provinces adopt.

"An evaluation of the policy is crucial to inform policy makers considering tradable permit policies for local air pollutants or greenhouse gases," explained. "Decision makers are looking for the least costly policies that will help achieve a cleaner environment."

Dr. Joel Wood, assistant professor in economics, is using his SSHRC Insight Development Grant to evaluate Ontario's emissions permit trading policy.

Research aims to reduce transformer failures

Dr. Kingsley Donkor has kept in touch with his students through the years, offering mentorship as they embark on different stages in their careers. One of those relationships has resulted in the successful NSERC Engage project, "Identification of marker compounds in ester fluids from electrical transformer components."

Donkor has partnered with TRU alumnus Stuart Chambers, a senior researcher with Surrey, BC - based Powertech Labs to pinpoint new ways to accurately confirm the health of electrical transformers. The findings will provide better understanding of the cause of transformer faults and could save the industry money on repairs, extending the life of transformers, and eliminating the need to replace transformers in the event of a catastrophic explosion.

Dr. Donkor also recently received a Discovery Grant for his project, "Environmental and Food Molecular Markers: Characterization and Binding Mechanisms by Separation Methods."



Dr. Kingsley Donkor, Professor, Chemistry

Partnership with SAIT explores new methods for tracking cattle

In a collaboration that could revolutionize the ranching industry, Dr. John Church, BC Regional Innovation Chair in Cattle Industry Sustainability, has partnered with the Southern Alberta Institute of Technology (SAIT) and Golden BC's Kingsclere Ranch on a \$663,940 NSERC College-University Idea to Innovation grant.

The three-year collaboration expands Church's body of research in precision ranching to explore new methods for successful detection of cattle on the range. The project will provide ranchers with new ways of managing their assets, which include both cattle and rangeland.

"Past management techniques have been more of an art rather than a science, and we hope to change that," said Church.

Dr. David Hill, associate professor of geography, is collaborating on the grant, using drones to create large, aerial photo maps that producers can use to make land management decisions.

"The drones give ranchers the ability to extend their vision, and the Radio Frequency Identification (RFID) technology will give them the ability to see exactly which cattle they're looking at," said Church.

Church began collaborating with Glen Kathler, Applied Research Chair at the RFID Research Lab at SAIT, two years ago. SAIT is a world leader in technology and electronics associated with the improved RFID ear tags that have been required since the mad cow scare in 2013.

Since 2003, all cattle must be tagged, but the technology hasn't provided much practical benefit for ranchers until now.

"With the drones, together with the RFID tags, we can develop a tool for producers that allows us to take the initial investment in technology and find a good use for it. Much of the herd is homogeneous — they're all black cows — but with this tool, each animal becomes truly unique," said Church.



Dr. John Church, BC Regional Innovation Chair in Cattle Industry Sustainability, is the lead researcher on a \$663,940 NSERC College-University Idea to Innovation Grant.



Dr. Kellee Caton, Associate Professor, Tourism

International conference tackles use of care ethics in tourism education

Tourism scholars from around the globe spent a week at TRU in June for the Tourism Education Futures Initiative's international conference, organized by Dr. Kellee Caton, associate professor in tourism.

The conference's theme, "Celebrating the Disruptive Power of Caring," offered workshops and lectures that explored the potential for care ethics to serve as an alternative model for tourism education and practice. The overarching goal was to encourage change within the industry, providing greater understanding of its social and environmental impacts. "As an industry, tourism isn't always positive in terms of the outcomes it generates — it's more complex than that," she said. "Tourism can be a positive force in the world, but it needs to be managed in the right way. As the world changes, tourism also changes."

The conference was supported by a SSHRC Connection Grant.



Backyard science: Tracking water as it moves through a disturbed landscape

How does a disturbance alter the way water moves through a landscape? As a hydrologist, Dr. Tom Pypker has long been asking this question, but now his research has shifted from the wetlands of Northern Michigan to the semi-arid grasslands of British Columbia.

"I'm interested in the grasslands because I like to study what is in my backyard," said Pypker, who arrived at TRU in 2013 from Michigan Technological University.

All of Pypker's research shares the common theme of landscape-level water movement. He started in cut blocks in Prince George, and then moved to the Douglas Fir forests of Oregon before exploring two wetlands in Northern Michigan. He looks at disturbances — human landscape management, insect invasions, and climate change, for example — and how they impact water movement.

Supported by an NSERC Discovery Grant for his project that assesses the impact

of vegetation on flow paths in semi-arid grasslands, Pypker is also collaborating on a number of other projects. He is working alongside TRU alumnus and 2016 Governor General Gold Medal winner Aaron Coelho in their Farm Adaptation Innovator Program project, *Climate Change Impact Risk Assessment Tool for Ponds used as Livestock Water Sources*, and is also actively involved in a Metro Vancouver-funded project with TRU's Dr. Wendy Gardner, exploring the use of biosolids as a long-term solution for soil development on mine tailings at Highland Valley Copper.

"I'm interested in finding out how our management of the ecosystem has altered our impact on the landscape."

The goal of his research is to develop greater understanding that can lead to more sustainable land management strategies.

Dr. Tom Pypker, assistant professor in Natural Resource Sciences, explores how water flows through grasslands that have been disturbed by climate change and human land management strategies, such as ranching.

TRUly United in community-driven research

TRU and the United Way Thompson Nicola Cariboo have embarked on a new, innovative partnership designed to facilitate the exchange of knowledge between faculty and student researchers and the community.

As Knowledge Mobilization Officer, Ann McCarthy will divide her time between TRU and the United Way, establishing relationships that produce community-driven research that contributes to evidence-based decision making. "Often our community-engaged research develops organically, but this is an intentional effort to harness the maximum impact of researchers. We know the results will work to achieve a higher quality of life for people living in Kamloops," said Dr. Will Garrett-Petts, AVP of Research and Graduate Studies.

"We're taking university research and making it useful, accessible and meaningful for the whole community," said United Way Executive Director Danalee Baker.



United Way
Thompson Nicola Cariboo

Putting Geographic Indicators on products from developing countries

Producers in developed nations have long benefitted from using marketing that ties to their geographic locations — France’s Champagne, for example, or Hawaii’s Kona-branded coffee — however, the move to use Geographic Indicators (GI) on items produced in developing nations has been slow.

Dr. Tesh Dagne, assistant professor of law, hopes to speed that process for Ugandan producers of sesame and vanilla. This Intellectual Property (IP) research expands his previous body of work that explored the production of coffee in Ethiopia and cocoa in Ghana.

“These crops — sesame and vanilla — are very unique to Uganda, and I hope to discover how IP law could be used to support producers to expand their products, and support production in general,” he said.

Dagne is supported by the International Development Research Centre in conjunction with Open AIR (African

Innovation Research). He is joined on the project by Dr. Chidi Oguamanam from the University of Ottawa.

Dagne will travel to Uganda to interview farmers, producers and traders, as well as individuals from government agencies, exploring how to employ IP law and GI indicators to benefit local producers.

Products registered under GIs have certain qualities, carrying with them the reputation for excellence that may come from the skill of the producers and the environmental factors of the region.

“These products have premium value in international markets, but the prices the farmers receive does not reflect the general value in the marketplace,” said Dagne.



Dr. Tesh Dagne, assistant professor in law, wants to see geographic indicators used to market sesame and vanilla in Uganda.



Jason Johnston, 2016 Knowledge Maker

Indigenous students become Knowledge Makers

Seventeen students spent a week this spring becoming Knowledge Makers as part of what is now an annual program designed to encourage Aboriginal undergraduate students to engage in research.

“We’ve been doing this for centuries — exploring, understanding and making new knowledge,” said Sereana Naepi, a TRU research fellow and Indigenous doctoral student who coordinated the project. “The students in this program were not just taking in information, they were thinking about it and making it their own.”

Jason Johnston, in his final year of a Bachelor of Tourism Management degree, used the opportunity to strengthen his business plan through research. Johnston, a member of the Neyaashiingmiing First Nation in Cape Croker, ON., plans to return home and develop a culturally-based adventure experience business, but wants to ensure his business has the support of band members.



Discovering new methods for teaching in a research centre without walls

The Collaboratory for Educational Research and Development in Nursing is designed to provide evidence-informed guidance in decisions about teaching, learning and evaluation in the School of Nursing, the university and beyond.

Dr. Noeman Mirza, the research group's founder, said the term collaboratory was chosen purposefully to move it beyond a physical room or space to a "centre without walls."

Mirza joined TRU from McMaster University in 2015, and hopes to harness the ideas of all nursing faculty within the Collaboratory, with the goal of uncovering the collective wealth of their knowledge and expertise.

Through partnerships, the Collaboratory will investigate, develop and implement new methods for lesson delivery, creative tools and assignments to assess the

achievement of learning goals, and interactive modes of testing that cater to the learning needs of a new generation of health-care students. The Collaboratory will also engage faculty and students in educational research and scholarship in order to advance research capacity in the School of Nursing.

"The goal is to combine our innovative ideas about teaching and learning and our diverse research expertise so we can achieve excellence in the delivery of nursing education at TRU and beyond," he said.

The Collaboratory is one of two new research centres under development at TRU, which is part of a concerted effort to accelerate the implementation of the university's five priorities and its Strategic Research Plan.

Dr. Noeman Mirza, assistant professor in nursing, is the director of the new Collaboratory for Educational Research and Development in Nursing.

Critical Cross Border Conversations

When Dr. Peter McLaren, a renowned leader in the field of critical pedagogy, delivered a workshop at TRU in 2015, a pair of TRU researchers were inspired to develop a new internationally-linked multidisciplinary centre that engages critical researchers on contemporary social issues.

Critical Cross-border Conversations (CCC) works to bring those researchers together. "We intend for it to be a one-stop-shop, a place for people to talk about issues, develop infrastructure for their research and build relationships," said Dr. Juliana West, assistant professor of social work, who founded the centre with colleague Dr. Daphne Jeyapal.

"We intend to establish an expertise based on local issues that can then have global implications," said Jeyapal. "The group's name refers to knowledge production that needs to be transformative. How can active, scholarly work in real time help to make this a better place for us all?"



Dr. Daphne Jeyapal and Dr. Juliana West, co-founders, Critical Cross-border Conversations

From idea to market, TRU Generator supports student success

Amplytica Inc. is a start-up developed in response to a challenge that arose in a TRU science lab.

Lee Bergstrand, who is completing dual degrees in computer science and microbiology, came up with the idea for his new software platform while working with Dr. Jonathan Van Hamme on a project proposal to use genomics to analyze microbes in samples from wastewater treatment plants.

The project involves analyzing 600 genomic samples and tagging each sample with up to 21 variables. The team needed to analyze the resulting 12,000 data points, so Bergstrand began developing a cloud platform to integrate the data, and spot trends within.

"I saw an opportunity to apply what I do with software data science to a biological setting. I can see this being the next big thing in the

biotech sector after personalized medicine," he said. The same application could be used across sectors, from mining to human health.

While Bergstrand had the technical skills to develop the application, entrepreneurship was a different matter. That's where the Generator came in. An on-campus technology hub, the Generator works in partnership with Kamloops Innovation (KI), providing support to students interested in commercializing their ideas.

Bergstrand has benefited from regular meetings with John Zubak, KI's Entrepreneur-in-Residence, and has been supported to write grants. He successfully obtained a BC Innovation Council Innovator Skills Initiative grant, which helped him hire a TRU computer science student to assist with the platform's development.



Lee Bergstrand, CEO and founder of Amplytica Inc., is a TRU Generator success story.



Nova Scotia Moonlight

Nova Scotia Moonlight by Doug Buis, associate professor in visual arts, was featured in the exhibition *An Odyssey*, at the Torrance Art Museum in Torrance, California. The artwork is a composite panorama, created from a series of long exposure photographs shot in moonlight in Broad Cove, Nova Scotia. The photograph is part of his ongoing series of panoramic landscape works depicting unlikely or unusual geographic or atmospheric conditions.

Scythes of Four Eldest Daughters

Darlene Kalynka, associate professor of visual arts, employs a print-based practice, specifically in the mediums of etching and screen printing. For her latest work, Kalynka explores narratives of family history and of discovering her ancestral heritage while traveling to the villages of western Ukraine. Scythes of Four Eldest Daughters combines bookworks and large-sized prints to represent the lineage of her paternal grandmother.



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