

2022-23

Research and **Creative** Activity Highlights

VANCOUVER ISLAND UNIVERSITY



WELCOME

from **Dr. Nicole Vaugeois**, Associate Vice-President, Research and Graduate Studies

The 2022-23 year marked the beginning of VIU's Scholarship, Research and Creative Activity Plan: *Transforming learning through knowledge creation* 2022-27. This plan aligns with VIU's Strategic Plan: *People, Place, Potential,* which sets forth ambitious goals where research is embedded in the teaching, research and community engagement activities of the University.

The dominant theme that emerged over the past year is one of collaboration. Throughout the year, VIU employees and students have expanded on existing or created new partnerships with external partners to collaborate on research initiatives. These efforts have enabled us to further our goal of becoming a hub for research and expertise in the region. The expertise at VIU is profiled externally through a new online experts list which showcases the depth and breadth of research talent at our institution.

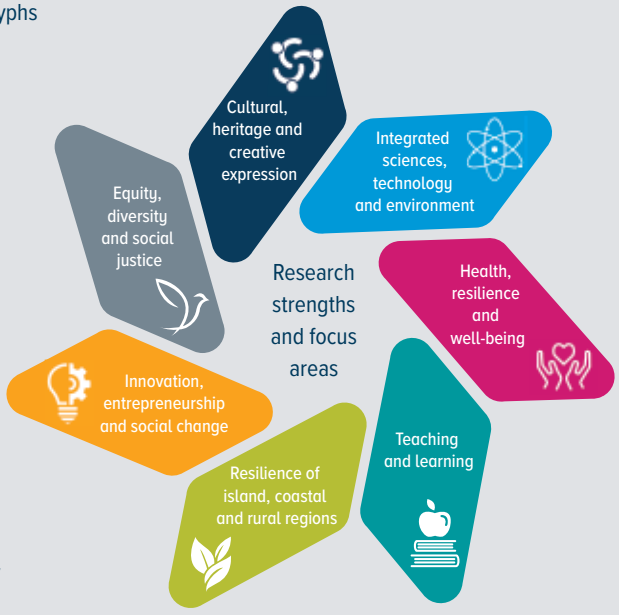
Collaborations between academic departments have also expanded, resulting in the creation of new research institutes, research groups and events. Collaborations with external donors like the Jarislowsky Foundation and research funding bodies like Health Research BC have allowed VIU to announce two new research chairs which will expand our research impact in the areas of trust and political leadership, and foot and ankle mobility.

VIU prides itself on our commitment to student learning through research. We strive to provide our students with opportunities to engage early and often in research pursuits. During our Research and Creative Activity Showcase month in April, VIU hosted numerous departmental and institution-wide events to profile the work that our students are engaged in. Our Office of Graduate Studies worked collaboratively with departments across the institution to build a stronger awareness of the unique needs of our graduate students and to create a culture of belonging through orientation and research sharing events.

VIU is proud of the impact that our employees, students and partners have made in scholarship, research and creative activities. These impacts could not be possible without the dedication of our faculty and the support of our research funding bodies. We look forward to continuing the strong trajectory of impact in 2023-24 and welcome the engagement of our students and community partners who share our interest in knowledge creation.

Content

5 By the numbers: VIU research
6 Elder-in-Residence publishes book on history and meaning of local petroglyphs
7 Q&A with Adjunct History Professor Kelly Black
8 Conference examines the environment and children's literature
10 Creating accessible computer science courses
11 Planning for more age-friendly communities
12 Sociology students publish a book examining gender
14 Using technology to support Indigenous data sovereignty
15 Getting trades students involved in applied research
16 How honeybees are harmed by climate change
18 Restoring one of Canada's most threatened ecosystems
20 Severe fire activity declines in Equatorial Asia
21 BC Protected Areas Research Forum held at VIU
22 Expert in democracy and public trust joins VIU
25 Creating a literary connection for Indigenous kids
26 Hyena encounters, how human brains work and meeting royals
28 Award-winning foot and ankle researcher joins Vancouver Island University
29 Collaborative psychedelic research centre launched at VIU
30 Pelvic health research can help identify gaps and inequities in care
31 Improving perinatal, neonatal services in Nunavut village
32 Chemistry professor building a new tool to map molecules in tissue
33 Q&A with Math Professor Melissa Huggan
34 Innovative chemistry research developing solutions for real-world issues
35 Gaining a global research perspective
36 2022 research award recipients
38 Student research awards
42 Key funding sources



Cover image:
VIU's inaugural Jarislowsky Chair in Trust and Political Leadership Dr. Michael K. MacKenzie answers a few questions about his role.
See page 22.

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MANAGING EDITORS
Dr. Nicole L. Vaugeois, Associate Vice-President, Research and Graduate Studies

Gillian Robinson, Director, Strategic Communications

EDITOR
Rachel Stern, Communications Officer

DESIGN AND PRODUCTION
Sheila Warren, Graphic Designer

WRITERS
Jenn McGarrigle, Vanessa Moraes, Rachel Stern, Eric Zimmer

CONTRIBUTORS
Gloria Bell, Island Expressions Photography

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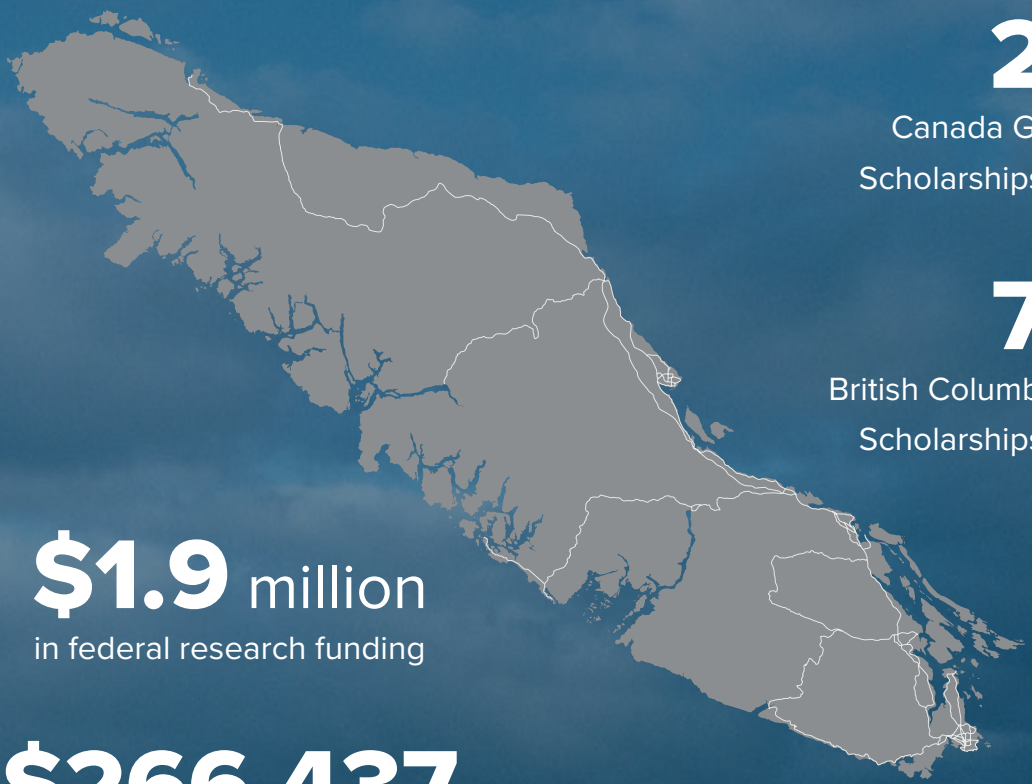


By the numbers: VIU research

9
NSERC Undergraduate Student Research Awards

2
Canada Graduate Scholarships awarded

7
British Columbia Graduate Scholarships awarded



$1.9 million
in federal research funding

$266,437
in Research Support Fund

$232,603
awarded for research infrastructure

$2.2 million
in funding from research grants and contracts

$485,000
in external student research funding

3,088
student research experiences

215
community research partners

10
Research and Innovation Chairs

Elder-in-Residence publishes book on history and meaning of local petroglyphs



Photos courtesy of C'tasi:a - Geraldine Manson

VIU Elder-in-Residence C'tasi:a - Geraldine Manson has authored a book that looks at the history, stories and meaning behind the petroglyphs that exist throughout the Nanaimo area.

The book, *Snuneymuxw History Written in Places and Spaces: Ancestor's Voices — An Echo in Time,* was created to give people a "clear understanding of the history of our ancestors – our Elders' Elders – and the work that they do, and to help share the background about the images," said Manson, a member of the Snuneymuxw First Nation.

"I wanted the focus to be on the importance of the images because many people, even today, think these images are just scribbles and that's it," said Manson.

It took a couple of years for Manson to research and write the book. The creation of the book runs parallel to a current project at the Gabriola Museum, where Manson and others are looking at reproducing the images on the museum grounds in an area that will be called "The Village of the Ancestors."

Working with the Gabriola Museum on a project like this was a two-fold fit for Manson.

"I've been involved with Gabriola, either through archaeological field assistance, or the museum itself or the petroglyphs – and petroglyphs have been my passion for many years," Manson said.

The information in the book came from knowledge that Manson holds with her. In addition to telling the story of her ancestors and history of the Snuneymuxw people, the images are still in use today, Manson said. "Some of these images are considered spiritual and continue to be used in sacred ceremonies," she said. ★



"I wanted the focus to be on the importance of the images because many people, even today, think these images are just scribbles and that's it."

C'tasi:a - Geraldine Manson

VIU Elder-in-Residence

Q&A with Adjunct History Professor Kelly Black

Dr. Kelly Black, a VIU Adjunct History Professor, received the Anne and Philip Yandle Best Article Award from the BC Historical Federation in 2022. The article, "Explaining Settlers to Ourselves: Rethinking interpretive narratives at heritage sites" was published in the spring 2021 edition of *British Columbia History* magazine.

Black has more than a decade of experience in heritage, museums and non-profit management. He received his PhD in Canadian Studies from Carleton University in 2018 and his research interests include settler-Indigenous relations, public and local history, the E&N land grant and (re)naming projects. He is the former Executive Director of Point Ellice House Museum and Gardens in Victoria.

We caught up with Black to learn about the work he won the award for and why it is important to revisit and reassess dominant historical narratives.

How does it feel to win the Anne and Philip Yandle Best Article Award from the BC Historical Federation for your work that reassesses the narrative of Point Ellice House's history?

It's cliché, but it's nice to be recognized for my writing and for the work we are doing at Point Ellice House. I find it encouraging that an article that is also a call to action was selected by the jury. The article asks settler heritage sites and museums "to make visible the disruptive processes of colonization" and I hope that by sharing news of the article's award a wider audience will engage with its arguments.

How did you re-evaluate the dominant narratives for Point Ellice House and why is it important to revisit Canada's historical narratives?

The first step was to look at what was missing. Point Ellice House has been a museum open to the public since 1967 and most of the narratives – or what we would call interpretation – had not been updated in decades. When I began working at Point Ellice House, visitors were presented with romantic narratives of the past which were perceived to be most enticing to visitors – stories of Victorian-era courtships, tea, tennis and roses. All stories are still worth telling, but it meant many other stories were not interpreted for the public – particularly those which place the house and its occupants in the context of the British Empire and the processes of colonization.

History, and presenting history to different audiences, is the work of revisiting and revising our understanding of the past. If we want to use the past to better understand our present, we need to re-evaluate the stories we've told ourselves about how things "used to be." ★



Dr. Kelly Black

VIU Adjunct History Professor

Conference examines the environment and children's literature

Assembling Common Worlds explores concepts of the human relationship with nature in youth culture



VIU hosted the Assembling Common Worlds conference in June 2022 to help broaden the understanding of environmental knowledge and issues in young people's literature and culture.

The international, interdisciplinary conference was on young people's literature and cultures in the Anthropocene, the time during which humans have had substantial impacts on climate and the environment.

The hybrid conference allowed participants to attend in person or virtually. Attendees explored concepts of eco-literacy and eco-activism. Eco-literacy is about understanding ecology and how the environment functions, including the human place within it. Eco-activism is about trying to raise awareness and stop activities that are damaging the environment.

"These are two areas that are emerging in children's and youth literature, and you'll see there are more books at all age levels about kids who are getting out there and trying to make a difference," said Terri Doughty, a VIU English Professor and conference organizer. "Whereas earlier environmental children's literature was more about creating literacy with a little bit of activism, so you would get children's books that promoted recycling and that sort of thing, now we're seeing more books and movies that radically challenge how Western culture has traditionally viewed the relationship between humans and nature."

The conference brought together scholars and practitioners from environmental education, literary studies, childhood studies and early childhood education to identify opportunities for cooperation and collaboration to tackle the challenges of generating intergenerational dialogue on current environmental concerns. Participants attended from across Canada, the US, Chile, Australia, New Zealand, the Philippines, South Africa, the UK, Greece and Poland.

"Assembling Common Worlds is really about decentering the human and looking at how humans can recalibrate our place on this planet that we share with other species," said Doughty.

Doughty said productive discussions and connections made at the conference have led to further work with additional collaborators on an edited book on multidisciplinary entanglements in children's cultures and pedagogies in the Anthropocene.

The conference ran for three days and each day featured a keynote speaker.

Dr. Justyna Deszcz-Tryhubczak from the University of Wroclaw in Poland presented *Finding Hope? Researching Children's Literature and Culture in 2022.* Deszcz-Tryhubczak said hope for a better future is the "bloodstream of children's literature and culture scholarship." Her discussion explored the possibility of hope in the face of current news about human-caused environmental degradation, including such events as the Russian invasion of Ukraine.

Dr. Affrica Taylor from the University of Canberra presented *Roos and Rabbits: Responding to Extinctions on Settler Colonized Land.* Taylor examined the representations of animals in Australian literature and how settler culture has adopted these animals as being emblematic of Australian society but their understanding and relationship with these animals is very different from how Australia's Aboriginal Peoples have traditionally understood these animals.

Dr. Amanda Wager, VIU's Canada Research Chair in Community-Engaged Research, presented *Land as Literacy: Young People Practicing Culturally Sustaining Land-Based Virtual Pedagogies.* Wager's discussion sought to advance understanding of how "young people and local Knowledge Keepers engage in their natural and local environments as a way to imagine and create cultural and global sustainability, specifically during a global pandemic."

During the conference, a special exhibition ran at the View Gallery. It featured posters on environmental themes created by Cinnabar Valley Elementary School Grade 7 students, as well as work by high school and university students.

The Assembling Common Worlds conference was supported by a Social Sciences and Humanities Research Council of Canada Connections Grant and a VIU Research Awards Committee Gather Grant. The conference organizing committee included Dr. Janet Grafton, Nicole Klan, Dr. Katharine Rollwagen, Sheila Grieve, Dr. Amanda Wager and Dr. Justyna Desczc-Tryhubczak.

Learn more about the conference at: **ah.viu.ca/assembling-common-worlds.** ★





"Assembling Common Worlds is really about decentering the human and looking at how humans can recalibrate our place on this planet that we share with other species."

Terri Doughty

VIU English Professor and conference organizer



Creating accessible computer science courses

Everyone deserves equal access to education, yet barriers remain for some learners.

Amber Thomas ran into barriers when she wanted to take a computer science course at her university in Alberta. The accessibility tools at her university would not work for her computer science course because it needed specialized tools. Thomas is blind and uses a screen reader to complete her courses.

Thomas sought permission to take an equivalent transfer course online through VIU with Dr. Sarah Carruthers, a VIU Computer Science Professor. Thomas knew Carruthers, as she previously attended VIU before moving back to Alberta in 2018. At VIU, Carruthers made accommodations that worked for Thomas in highly visual computer science courses.

Thomas said there was pushback from some students in the class because it meant extra work, but Carruthers explained why it was important.

"It's important for people to realize that accessibility isn't optional. She explained that I'm in the course and need to get as much out of it as my classmates. It's not just on the professor to make the course successful, it's on the students as well," said Thomas. "They have to make sure shared assignments are accessible for anyone who may have a disability whether that be vision loss or others."

Thomas worked with classmates Liam Kaufman-Willis and Aaron Wang to create a bulletin board app people could post notes on. The app was fully accessible by screen readers.

Carruthers, Thomas, Kaufman-Willis and Wang co-wrote a paper on their experience about why it's important to make university courses accessible, barriers to accessibility and considerations and lessons learned from the process. They presented the paper at the Special Interest Group on Computer Science Education conference in March. The conference provides a global forum for educators to discuss research and practices related to learning, teaching, development and the implementation of computer courses.

Many post-secondary institutions have resources to support and accommodate students with disabilities, but these may not work in specialized fields. Software development uses Unified Modelling Language (UML) and Computer Aided Software Engineering. These require a mouse to create and edit diagrams and they contain visual information that cannot be read by screen readers.

The challenge was finding such a diagram tool. Carruthers found PlantUML, which allows students to create diagrams from plain text language.

"To overcome challenges, we need to have an openness to new experiences and willingness to devote time and energy to adapt," said Wang, who graduated from VIU last year. "One of the things that was wise on Sarah's part is she didn't try to do all the adaptions on her own. She incorporated some of the people in the class like myself. We were all part of the process to some degree." ★



"It's important for people to realize that accessibility isn't optional."

Amber Thomas

VIU computer science student



Planning for more age-friendly communities

Canada's senior population is growing, which is why Master of Community Planning graduate Alicia McLean researched how communities can be managed to best support older adults. She conducted this research in 2022-23 with the help of a BC Graduate Scholarship.

We caught up with McLean to find out more about her research.

How did you decide on the MCP program?

I grew up on the Island so I've always known about VIU. I did my undergrad at UBC to try somewhere new and get outside of my comfort zone. After that I travelled through Europe, Mexico, Central America, Canada and the United States almost exclusively by bicycle or motorcycle. If that paid well, I might still be doing it! Instead, I came back to the Island and worked at a motorcycle shop for more than five years (sales, finance manager, sales manager). When I spoke to an educational advisor at VIU, she recommended a program that combined all my interests: writing, law, active and alternative transportation, economics, environmentalism and First Nations sovereignty. Once I spoke to the program director, Dr. Pam Shaw, and a few community planners, I was sold.

photo of Alicia McLean

Describe your research.

My research examines how community development (the building of housing and public spaces, as well as how it is managed by community planners) can best support older adults, in the context of population aging in British Columbia.

What did you find out?

I have discovered that the age-friendly communities movement provides a good framework but misses concrete recommendations to meet those goals, including: more accessible buildings, meaningful opportunities to socialize, and a range of housing options for seniors of all abilities, backgrounds and income levels.

It's also missing a set of metrics for measuring progress in a community. My thesis includes recommendations for how to embed age-friendliness into the development review process so that communities are better prepared for inevitable demographic changes.

What advice do you have for new grad students?

Apply for every scholarship and grant that you have access to. Scholarships that are specific to your school, area of study or professional organizations related to your future career are much more fruitful than the "Canada-wide" scholarships that you have no personal connection to. I thought I would go into debt to complete grad school but instead it has paid for itself twice over.

What's after grad school for you?

I am working in research right now as a planning projects coordinator with the Mount Arrowsmith Biosphere Region Research Institute, and I enjoy it, but my dream is to work in the not-for-profit sector focused on housing or social planning. There are municipalities and developers doing great things as well, so I'll never say no to something that aligns with my interests and principles. ★



Alicia McLean

VIU alum,
Master of Community Planning '23



Sociology students publish a book examining gender

For the first time at VIU, a sociology class has written and published a book together.

The students examined gender in their book *Gender: Reflections and Intersections* – a collaborative project for their Sociology 322 class. The 31 students each contributed two pieces: an academic article and one free-choice contribution that could be creative.

Dr. Vicki Nygaard, who teaches the course, said a sociology class has never written a book as a project before. The process allowed for a unique learning experience for the students.

"I am committed to experiential learning. I feel like this book was such a powerful way to learn, experience and work collaboratively," said Nygaard. "This allowed us to build a community in the classroom and work on collaborative, creative projects together. It also allowed people to excel in their own areas of interest."

The book was published through BCcampus with the help of VIU's Anwen Burk, a Curriculum, Teaching and Learning Specialist with the Centre for Innovation and Excellence in Learning. The book is available to read online at **pressbooks.bccampus.ca/gri1/.**

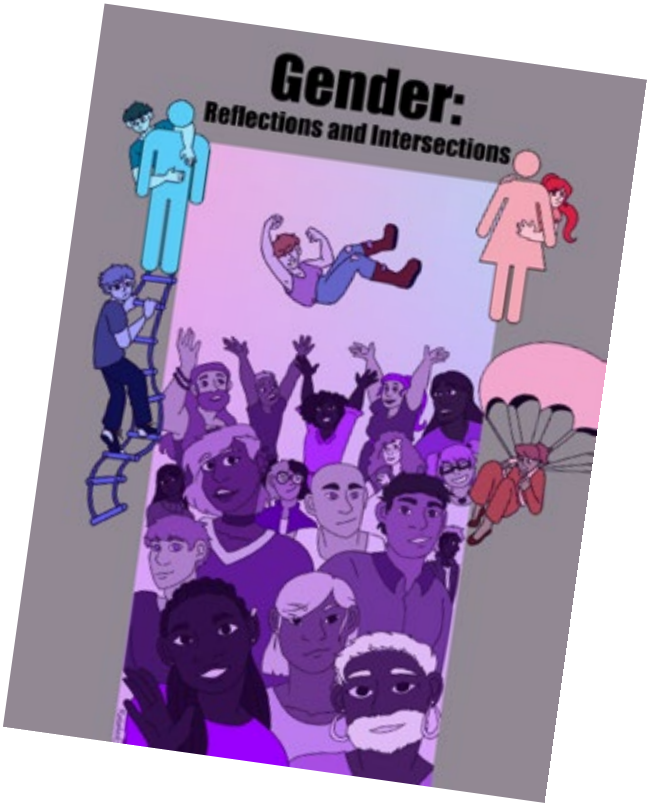


Image courtesy of Eva Rutzebeck

Two students share their experiences:

Creating the cover – *Eva Rutzebeck (she/they)*

Eva Rutzebeck used Clip Studio Paint to create the image and says it took about 15 hours over the course of a few days to complete.

"I wanted to make a piece that represented the spectrum of gender and gender presentation as well as the context of the book and the feelings someone might be having when they learn about gender as a more complex and nuanced topic," said Rutzebeck. "I wanted to illustrate a diverse group of people in terms of gender and race, which was a little challenging given the colour choices I made, but I hope that I did a good job."

Rutzebeck selected the colours based on the trans and non-binary pride flags and selected pink, blue and purple as the base colours. They used different shades of these base colours in the image, which Rutzebeck said was intentional and an homage to the fact that the book is about gender. They wanted to use colours people choose to represent themselves with.

"Purple was specifically chosen as a centrepiece colour because it can represent the spectrum inside and outside of the binary," said Rutzebeck. "It's not just pink and blue. We have many other shades inside and outside those two binary options, which I think is part of what this book is going to teach people about gender, its complexities and the varied spectrum of experiences with interconnecting different issues."



"I feel like this book was such a powerful way to learn, experience and work collaboratively. This allowed us to build a community in the classroom and work on collaborative, creative projects together."

Dr. Vicki Nygaard

VIU Sociology Professor

Gender identity and expression in early childhood education settings – *TK Hannah (they/he)*

TK Hannah's academic contribution focuses on gender identity and expression in the field of early childhood education. Hannah said the gender-expansive practice is a new and growing area of study. The practice features gender-affirming practices which try to prevent discrimination from happening rather than just intervening when discrimination occurs.

Since the introduction of gender identity and gender expression in the human rights code, Hannah said early childhood organizations have been "grappling" with their legal duty to provide safe spaces for children of diverse gender identities and gender expressions. He outlines common approaches educators use to create safe spaces for children with different gender identities and expressions, which they break down into three categories – red light, green light and yellow light.

Red light practices maintain cisnormativity. Hannah's example of this is an educator redirecting a boy wearing a dress, telling him to wear a skirt instead, so his gender expression fits inside masculinity norms because "men in Scotland wear kilts."

Hannah said some common approaches are yellow light, which might seem good but are troubled.

"Many children's books that feature gender-expansive children have victim narratives that portray trans kids as prone to bullying and suicide. They are portrayed as isolated or cut off from loved ones," said Hannah. "They don't show the whole picture. This leads to transgender kids having their stories and their realities portrayed in an inferior light."

Green light are best practices that recognize things such as children's gender agency.

"Gender agency means that children can tell us as adults what they understand their gender to be as well as not assuming that they are transgender, cisgender. It is just allowing them to follow where they want to go," said Hannah. ★

Student contributors include:

Aidan Brot
Destiny Davidson
Hayes Evans
Samantha Furneaux
Sydney Gallant
Angela Goerz
Marshall Hagel
TK Hannah
Eden Hatch
Inara Hirani
Stori Jensen-Granger
Jared Keim
Caitlin Kellendonk
Maven Laberge
Emma Lachman
Rayel MacLean
Breeanna McCallum-Miller
Madeline McIntyre
Heather Nalezyty
Katie Near
Zoe Paine
Eli Parker
Thomas Roden
Eva Rutzebeck
David Schneider
Tara-Fay Sedar
Meagan Sharpe
Kendall Smith
Jenna Sportak
Maya Stinert
Jessica Underwood

Using technology to support Indigenous data sovereignty

Dr. Shanna Lorenz's research is supporting Indigenous data sovereignty thanks to a digital app called Our Data Indigenous, which she helped design alongside faculty and First Nations community data specialists in Canada and the United States.

"We're in this moment when there is an amazing data sovereignty movement," said Lorenz, VIU's 2022 Fulbright Canada Visiting Research Chair in Indigenous Studies. "Many organizations are demanding that Indigenous communities have the right to collect, control and protect data."

Lorenz is part of the app development and education teams for the Our Data Indigenous app, which uses digital surveys to collect quantitative and qualitative data. A keystone of the app, which follows First Nations OCAP® Principles, is that research is done in a way that respects Indigenous peoples' traditional knowledge and values.

"Indigenous people are making telecommunications technologies their own and finding ways to adapt and transform them, so they fit Indigenous aesthetics, uses and modes of sociality," said Lorenz. "It's really powerful when researchers can develop technology in a collaborative way."

During her four-month term at VIU, Lorenz evaluated the app and worked with Indigenous communities in BC on a pilot project to add geographic information system capabilities. This allows communities to use the app to collect and map geospatial information related to environmental monitoring, cultural sites and language usage.

This pilot project builds on two years of previous work on the Our Data Indigenous app. The original research project, called "kitatipithitamak mithwayawin: Indigenous-led countermeasures to Coronavirus (COVID-19) and other pandemics, then, now, and into the future" was created in response to the pandemic and involved 11 Indigenous partner organizations. The phrase kitatipithitamak mithwayawin is Cree for "to hold ownership and control over the health and well-being of our own."

One of the early stumbling blocks the team overcame is the digital divide in Canada. That meant the app needed to work offline. The team created an offline pack, consisting of a local computer, router, tablet and portable power station that establishes a local area network (LAN). The LAN allows people to access surveys on a tablet or cellphone and then save and visualize data on a local computer.

The app allows community data specialists to create, administer and visualize their own surveys depending on their community's needs.

"These communities are Indigenizing research methods themselves. For example, survey development in First Nations communities may look different than it does in other settings," said Lorenz. ★



"Indigenous people are making telecommunications technologies their own and finding ways to adapt and transform them, so they fit Indigenous aesthetics, uses and modes of sociality."

Dr. Shanna Lorenz

VIU's 2022 Fulbright Canada Visiting Research Chair in Indigenous Studies

Getting trades students involved in applied research



Good things happen when trades instructors and students get involved in applied research. That's why Dr. Sally Vinden, Associate Dean of Trades and Applied Technology at VIU, co-organized a conference last February on this topic.

When faculty and students from different disciplines come together with industry to work on solutions to real-world problems, "that's when the magic happens," she said.

Vinden is hoping to break down the myth that only academic programs can do research. Culinary students recently collaborated with microbiology students to come up with new fermented seaweed products. They presented their products at the Urchin Tank – a *Dragon's Den*-style event that included judges from the seaweed industry. The products were developed in response to industry's question: "What else can we do with seaweed?"

We caught up with Vinden to learn more about what's happening with research involving trades students and faculty.

What are some VIU projects where trades students partnered with industry and students from other disciplines on applied research?

There's the Urchin Tank example mentioned above. The Rhododendron Revival Project is a collaborative study that involves the Rhododendron Society of Vancouver Island, Milner Gardens & Woodland and the VIU Horticulture department. The research focuses on figuring out which rhododendron hybrids can be successfully propagated.

The Oyster Challenge was a collaboration between VIU's Centre for Seafood Innovation and culinary students. Skilled oyster shuckers are in short supply due to labour shortages. Students created new food products using oyster meat shucked using a high-pressure processing method.

What do you hope to achieve by getting trades students involved in interdisciplinary research?

This approach to teaching and learning is future-proofing our students. Applied research offers opportunities for critical thinking and collaboration across disciplines. It allows students to work on projects that don't have pre-determined outcomes. This is vital to preparing students to be both adaptable and innovative. Students are going to face problems that don't have answers throughout their careers, so engaging in applied research while studying is an important part of preparing them to join the workforce. The learning outcomes for trades students at VIU shift significantly in a very positive way when they are provided with opportunities to further develop these problem-solving abilities. The more we can develop these abilities, the better we are able to prepare students for today's workplace, and for future challenges that don't yet exist.

What impact could this have on community/industry?

VIU is well-positioned to be a hub of experts for local industry. We have students in traditional academic programs as well as trades and applied technology students who can work together on solutions to real-world problems. We are going to see more innovative solutions emerge as more projects and partners come on board. ★



Dr. Sally Vinden

VIU Associate Dean of Trades and Applied Technology



How honeybees are harmed by climate change

Sierra De Buysscher-Nailor studied impact of temperatures on bee health and habitat

Sierra De Buysscher-Nailor has taken a special interest in understanding climate change.

An aspiring beekeeper, De Buysscher-Nailor wanted to develop a better understanding of the risks she will be facing in upcoming years as she starts her beekeeping journey. De Buysscher-Nailor graduated in June with a Bachelor of Arts, honours in Geography. While attending VIU she researched the impacts of climate change on the health and habitat of the western honeybee.

Using climate modelling data, De Buysscher-Nailor looked at how increasing temperatures will impact honeybees.

“I wanted to compare data from different areas across British Columbia to see how it might change from north to south and coast to interior," she said.

De Buysscher-Nailor decided to first analyze climate change projections based on a “business as regular” high greenhouse gas emissions scenario. This high-emissions scenario was then compared to a low-emissions scenario. This in turn showed the difference humans can make if we take the necessary steps to reduce global greenhouse gas emissions.

The best foraging temperature for the western honeybee is between 16 C and 30 C, she explained. Temperatures above 30 C result in a decrease in foraging activity and an increase in water collection.

“I identified how many projected days we will be experiencing above 30 C by the end of the century and I was surprised to see the difference between the two emissions scenarios; honeybees across British Columbia can expect an average of 30 days per year of reduced foraging activity by the end of the century under a high-emissions scenario, significantly more than the current average of nine days per year.”

De Buysscher-Nailor hopes her research can be used by beekeepers to develop mitigation strategies to protect their hives from climate change.

“On a personal level, this research project has provided me with important information that will shape the ways that I care for my honeybees in the event of further climate change,” she said.

She wrapped up her research – the final project of her undergraduate degree – in April. She presented her findings at the Western Division of the Canadian Association of Geographers conference and the CREATE student research conference at VIU.

“Mobilizing knowledge is something that I am passionate about, and I have taken many opportunities throughout my degree to do so. This research project is no different,” she said. ★



“On a personal level, this research project has provided me with important information that will shape the ways that I care for my honeybees in the event of further climate change.”

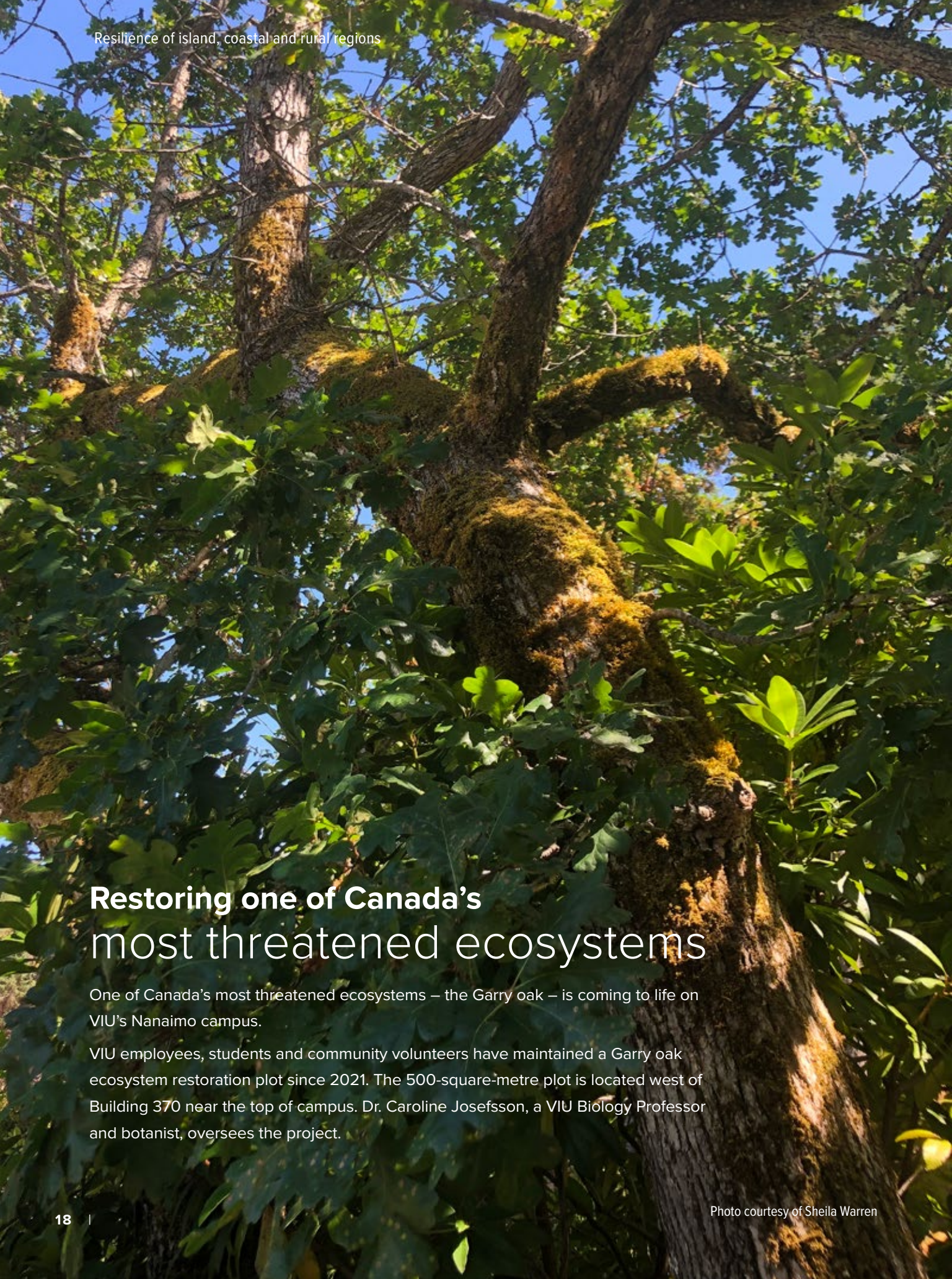
Sierra De Buysscher-Nailor

VIU alum, Bachelor of Arts ’23









Restoring one of Canada's most threatened ecosystems

One of Canada's most threatened ecosystems – the Garry oak – is coming to life on VIU's Nanaimo campus.

VIU employees, students and community volunteers have maintained a Garry oak ecosystem restoration plot since 2021. The 500-square-metre plot is located west of Building 370 near the top of campus. Dr. Caroline Josefsson, a VIU Biology Professor and botanist, oversees the project.

Photo courtesy of Sheila Warren

"We're all aware of global warming and climate change. There are a few things we could do as individuals, but most people can't afford to buy an electric vehicle or have solar panels on their house, so it can feel hopeless," said Josefsson. "By planting native plants in our community, which is affordable and within reach, you see from one day to another that you are making a difference in reversing the biodiversity crisis we're in. It's good for the soul."

According to the Garry oak ecosystems recovery team, the Garry oak ecosystem is home to many species at risk in British Columbia. Many of these species aren't found anywhere else in Canada. Threats to the ecosystem include development, invasive species and habitat fragmentation.

"The Garry oak ecosystem is the most biodiverse of all ecosystems in Canada and is home to about 100 rare species of plants and animals," said Josefsson. "Any one of these species is important in its own right as it represents millions of years of co-evolution with all the other members of the ecological community in which it resides. Preserving intact ecosystems is always the best way to protect individual rare and threatened species."

Garry oaks are drought-tolerant plants because they are slow-growing and have deep root systems. Their waxy leaves also prevent too much water loss. It is unknown whether Garry oaks were present on the Nanaimo campus in the past, but it is likely since it is near Harewood Plains, a remnant of the Garry oak ecosystem.

Josefsson said Coast Salish peoples have cared for and maintained this ecosystem for several millennia for food, medicine and game. They maintained it through selective harvesting of edible plants, weeding and periodic burning to prevent encroachment by conifers.

Hunter Jarratt graduated from VIU with a Bachelor of Natural Resource Protection in June 2023. He worked as an ecological restoration assistant on the project while attending VIU. He said projects like the restoration project at VIU could be implemented across the entire City of Nanaimo. Turf lawns, for example, are a perfect opportunity for a meadow habitat. Native species just need to be given a chance.

"As climate change continues, it's going to be incredibly important that projects like this are occurring," said Jarratt.

VIU's Garry oak ecosystem project has received support through fundraising by VIU's Eco Club and a VIU Innovate Grant. ★



Dr. Caroline Josefsson

VIU Biology Professor



Hunter Jarratt

VIU alum, Bachelor of Natural Resource Protection '23

The Invasive Species Guy

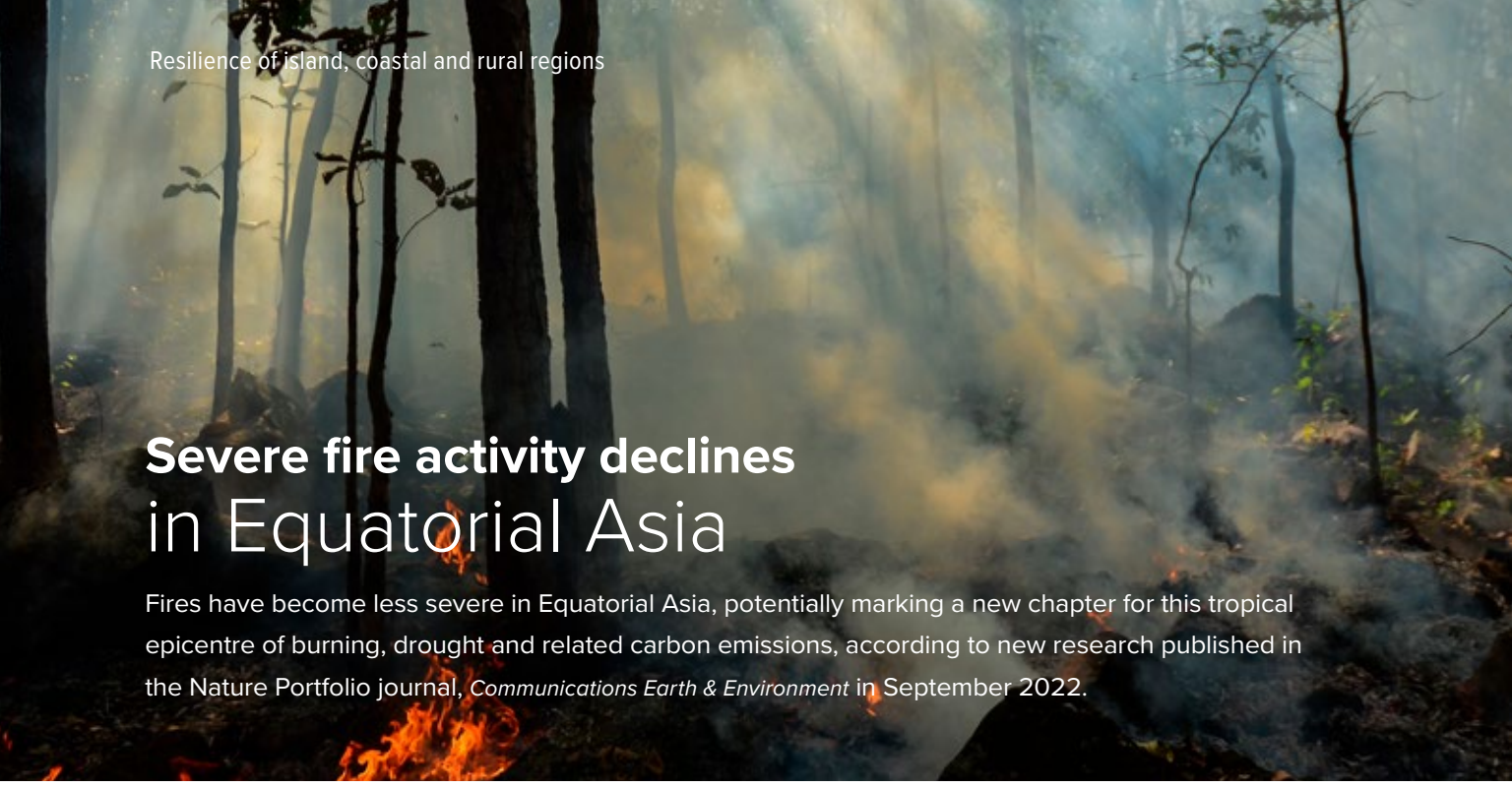
Hunter Jarratt is passionate about the natural environment and removing invasive species. He is known as the Invasive Species Guy on social media and has a following on TikTok and Instagram.

The idea for the account "presented itself because of a video going viral overnight back in 2020 – a video outlining an 'easy snack' idea," he recalls.

However, Hunter's real passion was for the natural environment.

"I started removing invasive plants in my spare time and making posts about it and the positive impacts from doing so," he said. "The content was well received, I started to build a small community on there, and with a username change, the 'Invasive Species Guy' was born."

Now, with the TikTok account boasting more than 36,000 followers, Hunter said his favourite aspect of the account has been the connections he made and the learning he's done.



Severe fire activity declines in Equatorial Asia

Fires have become less severe in Equatorial Asia, potentially marking a new chapter for this tropical epicentre of burning, drought and related carbon emissions, according to new research published in the Nature Portfolio journal, *Communications Earth & Environment* in September 2022.

Using satellite data, scientists from VIU, France's Agricultural Research Centre for International Development, Cardiff University, Boise State University, TheTreeMap and The Australian National University observed individual fires over the period 2000 to 2019 in Indonesia to estimate their severity – defined by the amount of energy they release, their duration and size – in relation to rainfall.

"We discovered that fires were becoming less severe by the late 2010s, compared to the early 2000s, for a given level of drought," said Dr. Sean Sloan, VIU's Canada Research Chair in the Human Dimensions of Sustainability and Resilience, who led the study.

After controlling for large fluctuations in rainfall caused by global El Niño cycles, scientists observed that fires experienced steady declines in their severity between 2002 and 2019, particularly in Sumatra, one of the Sunda Islands of western Indonesia.

Declines to fire severity concentrated over managed lands. Although agricultural activity such as land clearing historically drove extreme burning, this study revealed mosaic croplands were 11 per cent less common among severe fires by the late 2010s compared to the early 2000s.

"These declines to severe fire activity seem counterintuitive because, in absolute terms, fire activity might not have decreased, given extreme year-on-year variability," said co-author Dr. David Gaveau, a scientist with TheTreeMap.

Since the unprecedented burning of 1997, the worst years for fire and, particularly, drought were 2015 and 2019. As with other extreme fire seasons, burning resulted from progressive forest conversion, mainly for agricultural commodities like palm oil, and entailed huge economic, ecological and health costs. After decades of agricultural activity boosting extreme burning, the study highlights that land management may now be dampening it.

"We've debated whether the decline to severe fire activity is the result of improved fire governance by government and plantation companies, or the result of plantation consolidation in Sumatra and Kalimantan," said Gaveau. "Clearly, nobody wants to burn their assets."

The findings mean that over the last 20 years, Indonesian burning has become less sensitive to recurrent El Niño drought.

"Optimistically, if this trend holds steady, burning may decline more profoundly over future decades. However, stubborn burning on high-carbon peatlands must still be addressed," said Sloan. ★



Dr. Sean Sloan

VIU's Canada Research Chair in the Human Dimensions of Sustainability and Resilience



BC Protected Areas Research Forum held at VIU

VIU, in partnership with BC Parks and the Yellowstone to Yukon Conservation Initiative, hosted the 2022 BC Protected Areas Research Forum (BC PARF).

The event took place from December 12 to 14 with 170 delegates in attendance. It featured two plenary sessions and more than 60 presentations in 14 concurrent sessions.

VIU Elder-in-Residence Uncle Randy Fred and keynote speaker Naomi Owens-Beek of the Saulteau First Nation opened the conference with a strong message about the importance of Indigenous leadership and involvement in conservation.

VIU faculty and Hannah Dudney, who graduated in June, presented at the forum. Dudney, who also facilitated a pre-conference workshop, was awarded the Pam Wright student award for social science research excellence. PhD candidate Cassandra Elphinstone (UBC) received the Tori Stevens student award for biological science excellence.

Dudney's research, which she conducted while attending VIU, focused on the experiences of park crowding for people with mobility-related disabilities. Taking what she called a phenomenological approach, Dudney, a Master of Arts in Sustainable Leisure Management graduate, identified and catalogued lived experiences. Her research process involved conducting interviews with participants in parks around Vancouver Island (chosen by the participants themselves) and additional questions that focused on practical management solutions to park crowding.

The value of attending a conference like this was "connecting with practitioners and academics who were willing to share and willing to listen," said Dudney.

VIU World Leisure Centre of Excellence Director Dr. Aggie Weighill said hosting the event "provided an opportunity for VIU researchers and students to share knowledge and engage with other scholars and practitioners. It also attracted more than 150 visitors to Nanaimo in early December."

Community support for the conference was provided by the Nanaimo Hospitality Association, the Coast Bastion Hotel and Tourism Nanaimo.

"Tourism Nanaimo is working hard to encourage visitation year-round, and BC PARF highlights the opportunity to host successful events in the off-season," said Jenn Houtby, Interim Executive Director.

The conference is hosted every two years at different universities throughout BC. The 2022 forum was the seventh gathering and the first one since 2018. ★



"Hosting the event provided an opportunity for VIU researchers and students to share knowledge and engage with other scholars and practitioners."

Dr. Aggie Weighill

VIU World Leisure Centre of Excellence Director



Hannah Dudney

VIU alum, Master of Arts in Sustainable Leisure Management '23

Expert in democracy and public trust joins VIU

New role will focus on education program for future leaders



Dr. Michael K. MacKenzie is VIU's inaugural Jarislowsky Chair in Trust and Political Leadership. This is a new role that will focus on educating future politicians and civil servants. It is unique because it is part of a network of chairs at five universities across Canada, who will work together on this mandate. The network is spearheaded by the Jarislowsky Foundation, which has provided funding to help establish these roles. The other universities are:

- Acadia University
- Université du Québec à Trois-Rivières (in collaboration with l'École Nationale d'Administration Publique),
- Trent University,
- the University of Lethbridge.

MacKenzie has spent the past 20 years studying and writing about democracy. He holds a PhD in political science from the University of British Columbia, a master's in political science and social statistics from McGill University and a Bachelor of Arts in Politics from the University of Winnipeg. Before coming to VIU, he was an Associate Professor in the department of Political Science at the University of Pittsburgh. He was happy to answer a few of our questions about this role.



"I hope to help make the network a prominent and valuable resource in public discussions about democracy in Canada."

Dr. Michael K. MacKenzie

VIU's inaugural Jarislowsky Chair in Trust and Political Leadership

Why is this role important?

Democracy is a valuable but fragile collective good. When democracies work well, they empower people to make authoritative decisions about their own lives and about how they might live well with others. Trust is an interesting democratic good because we do not want too little or too much of it. Without trust it's impossible for people to achieve things together. But in a democracy, we do not want or expect people to blindly trust their leaders. In a democracy we want and need people to have just the right amount of trust in their leaders and in each other. People need to trust others when they have good reasons to do so, but they should remain thoughtfully critical so that they can object when others do things that violate their trust. To get this balance right, good democracies need informed and thoughtful populations, well-designed institutions and leaders who give people reasons to trust them. These conditions are difficult to achieve but they are even more difficult to maintain over the long-term, as they have to be re-created every electoral cycle and in each generation. The network of Jarislowsky Chairs in Trust and Political Leadership will work to support the creation and maintenance of these essential democratic goods in Canada. The generous endowments that support the work of the chairs will make it possible for the network to continue doing this important work well into the future.

How do you think this network will impact leadership training?

I am excited to work with the other chairs to develop a program for leadership training in Canada. The five chairs will work together, and with many others, to develop a program that will be attractive to future leaders from all parts of Canada. This includes people who want to be leaders in electoral politics and community leaders doing work outside the electoral arena. Jarislowsky's idea to create a national network of chairs is itself an innovative bit of leadership. Most endowed university chairs are not formally networked with other research chairs. This network across Canada will provide future leaders with opportunities to learn about different aspects of our vast and diverse country.

What elements of your background does this role tie in with most?

I've spent 20 years studying and writing about democracy. During my undergraduate degree I studied participatory democracy and community economic development. My master's thesis looked at political knowledge or what people know (and do not know) about politics.

In 2006 and 2007, I worked as a policy analyst, facilitator and educator with the Ontario Citizens' Assembly on Electoral Reform. This was an innovative democratic exercise that was modeled on a process that was pioneered here in British Columbia in 2004. In Ontario, 103 citizens were randomly selected to study the province's electoral system, design a working alternative system and initiate a referendum on electoral reform.

My experience working with the Ontario Citizens' Assembly sparked a life-long interest in innovative democratic institutions. I have been working on this topic (new ways of doing democracy) ever since. My PhD dissertation explores the challenges and possibilities of making long-term decisions in democratic systems. I continued doing this work as a post-doctoral fellow at the Ash Center for Democratic Governance and Innovation at Harvard University, and as a professor at the University of Pittsburgh.

My book *Future Publics: Democracy, Deliberation, and Future-Regarding Collective Action* is the culmination of the work I did both during and after my PhD. Over time, I have come to think that political knowledge, deliberation, trust, effective leadership and robust democratic institutions are needed if we are going to make our shared futures together in intentional ways.

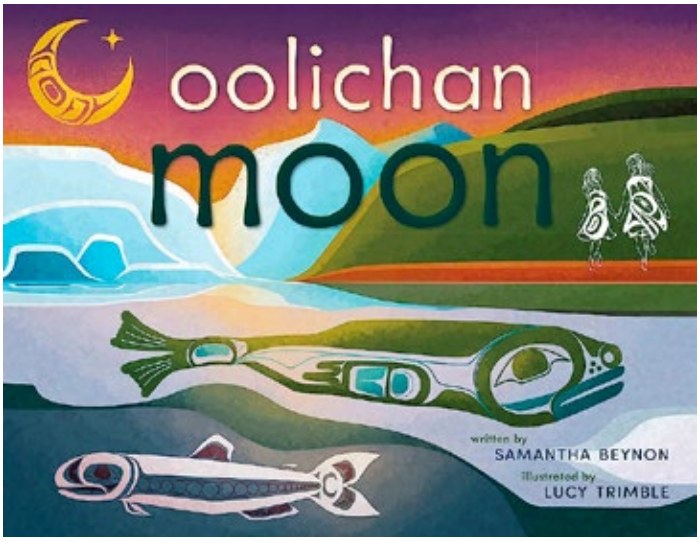
What do you hope to accomplish?

During the first year in my new position, I'll be getting to know the VIU community and the other Jarislowsky Chairs in Trust and Political Leadership. I'll teach, continue working on my current research agenda and start some new research projects. The big task, as I see it, will be to work with the other chairs to design and initiate a Canada-wide leadership training program.

Over the long-term, I hope to help make the network a prominent and valuable resource in public discussions about democracy in Canada. I'll work with the other chairs to develop a prestigious leadership training program that will bring students from all over Canada into our universities. I'll continue to study and write about democracy. I have many ideas for books and other research projects. And I hope to persuade existing community and political leaders to experiment with new ways of doing democracy. ★

The Jarislowsky Foundation has invested $2 million as part of a $4 million endowment supported by the community, including a $375,000 gift from Scotiabank and matching funds from the VIU Foundation, to help establish the new research chair at VIU.





Creating a literary connection for Indigenous kids

What originally started as a small summer project for Samantha Beynon ultimately led to publishing a children's book.

Beynon is a graduate of the Bachelor of Education program at VIU. She is currently teaching at an elementary school in Prince Rupert where she is originally from. She is also enrolled in VIU's Master of Education in Educational Leadership program.

In addition to her post-secondary studies and career path, Beynon is also the author of *Oolichan Moon*, published by Harbour Publishing and available in various retail locations.

"I actually wrote it a couple of years ago, and self-published it," said Beynon.

And while the book "got some attention," it wasn't until Harbour Publishing took notice of it and offered her a publishing contract that things began to take off, she said.

"Going through a recognized publishing institution was way better because we were able to add some more illustrations and just improve the quality overall."

Beynon is Nisga'a and Ts'msyen and said she wrote the book because she wanted to create something for Indigenous children that related to traditional food.

"I reflected back to my own childhood and we didn't really have any stories on traditional foods. I wanted to give them that," she said.

The original title of the book was *Sisters Learn Traditional Foods*, but the name was changed to *Oolichan Moon* after the contract with Harbour Publishing was signed.

And while she is continuing to pursue her career in education, Samantha Beynon said writing is what she loves the most.

What took a little more time was the book's illustrations, which all were done by her first cousin, who Beynon said is more like a sister to her.

As for any future writing projects, Samantha Beynon said she "wants to see how far I can take it. I'm definitely in my happy place when I'm writing and I love it. My brain is constantly going with ideas." ★



"I reflected back to my own childhood and we didn't really have any stories on traditional foods. I wanted to give them that."

Samantha Beynon

VIU alum, Bachelor of Education '22





Hyena encounters, how human brains work and meeting royals

VIU's president and provost share their research journeys

As a young researcher, Dr. Michael Quinn, now VIU's Provost and Vice-President Academic, was studying the endangered blue swallow on the Nyika Plateau in Malawi, Africa. As the field season was nearing its end, there was one final nest site to visit. Quinn volunteered to make the 18-kilometre hike to see if the young birds were hatched and healthy. It was a hot day and he left with only his binoculars, a notebook and a water bottle. As he started the return trek in the fading light, a small group of hyenas began following Quinn as he made his way across a series of ridges. The hungry animals were whooping maniacally, rising and falling off the side of the ridge and getting progressively closer.

Knowing that hyenas will wait to attack tired prey, Quinn decided to slowly increase his pace rather than slow down and show weakness. After almost an hour of being followed, he was almost at a full run before the animals decided to give up. Arriving back at camp was a huge relief. Only the day before he had watched a group of hyenas devour a reed buck, about the size of Vancouver Island's black-tailed deer, leaving only two small horns. Even the bones were eaten.

Before Dr. Deborah Saucier and Quinn were president and provost at Vancouver Island University, respectively, they were award-winning researchers whose curiosity took them to unique places and led them in directions they never imagined. President Saucier and Quinn shared highlights from their research journeys at VIU's 2023 Research and Creative Activity Symposium. They also shared their views on the role of scholarship, research and creative activities at VIU.

President Saucier's background is as a distinguished researcher in both psychology and neuroscience. She was the Canadian Research Chair in Behavioural Neuroscience at the University of Lethbridge and Dean of Science at the University of Ontario Institute of Technology. She has earned several research grants over the years, including awards from the Natural Sciences and Engineering Research Council of Canada and the Canada Foundation for Innovation.



Photo courtesy of Michael Quinn

During the talk, she described a career journey that took advantage of open doors and strong mentors. President Saucier's passion was studying how the brain changes with experience. This led her to study how steroid hormones and sex hormones affect the brain, how epilepsy changes the brain and the differences between male and female brains. This research path has also led her to study hummingbird brains and human movement, among many other areas.

"I was able to sit down with somebody who I respected deeply and follow my bliss on what I wanted to study. And what I wanted to study was how the brain changes with experience. And they paid me to do it," she said.

Every time President Saucier took a new position, she had to learn a new "learning language." Every time she learned these new languages and new ways of knowing, she could view the world in different ways.



Photo courtesy of Dr. Michael Quinn

"That's really the richness of what we do here, in my mind. We get to play with ideas, whether it's with your students in the classroom, in your lab or in a paper or a book," she said.

Quinn's academic leadership roles were preceded by 16 years as an associate and full professor in the Faculty of Environmental Design at the University of Calgary. He oversaw interdisciplinary research programs in parks and protected areas, landscape planning and management, ecological design, human dimensions of wildlife, and sustainability and resilience.

His research journey began as a kid when he came face-to-face with a saw-whet owl under a massive spruce tree. He remembers wanting to know more about the owl and what it was doing.

"I've spent my life wondering why, and whenever I asked questions, people would look at me annoyed and say, 'Go find out,'" said Quinn. So, he did.

"One of the most exciting things about undergraduate education is not what you think you're going to do when you get there, but what you discover and that sends you on an entirely different trajectory," he explained. "Scholarly activity does that because it's about exposing you to things you never knew existed."

As his career progressed, Quinn found that much of his research fell into the interdisciplinary category.

"It was about creating space between the things and academia and scholarly inquiry led me to do that," he said. "I had to understand the disciplines that I was working in, but making the connections is what excited me the most."

Quinn also spoke about the international travel experiences that his research has allowed him to have. These include being stalked by hyenas in Malawi, hosting the King of Sweden at a poster presentation and meeting Queen Elizabeth on the Balmoral estate, where he was researching the impacts of Asiatic rhododendrons.

"There is no way I would have been able to get to the places that I've been able to get to if I weren't involved in research," he added. ★



Dr. Deborah Saucier

VIU President and Vice-Chancellor



"I've spent my life wondering why, and whenever I asked questions, people would look at me annoyed and say, 'Go find out.'"

Dr. Michael Quinn

VIU Provost and Vice-President Academic



Award-winning foot and ankle researcher joins Vancouver Island University

“You need to improve your stability” is one of the most common pieces of advice offered by clinicians to people recovering from an injury resulting from a fall.

Despite this, researchers are still trying to determine the best way to help people maintain their stability as they age. This is the focus of an award-winning researcher joining Vancouver Island University. Dr. Michael Asmussen is investigating the structure, function and neural control of the foot and ankle during movement in healthy, injured and diseased states and translating this into innovative health-care solutions.

Asmussen is the recipient of a Michael Smith Health Research BC Scholar award. The award is highly competitive and supports early-career health researchers who are building leading-edge research programs.

It is the latest career achievement for Asmussen, who has held a Canada Research Chair position in Neuromechanics and Human Physiology at Mount Royal University in Alberta since 2020. In 2021, he was awarded the International Society of Biomechanics World Athletics Award for his research related to locomotion biomechanics.

Asmussen’s research program focuses on how the foot and ankle are essential for the human ability to walk and run. He aims to provide a mechanistic understanding of how the foot-ankle complex contributes to stability during common mobility tasks such as walking or balancing. He will then translate this research into innovative health-care and technology solutions. He uses a combination of biomechanical tools, physiological measures, computer modelling and simulation techniques to answer pressing research questions.

At VIU, Asmussen will work mostly with human participants. He will also work with clinics in the mid-Island region to develop tools that are better able to assess and improve a person’s mobility using low-cost, easy-to-use technologies. ★



Dr. Michael Asmussen

VIU Education and Kinesiology Professor



Collaborative psychedelic research centre launched at VIU

A first of its kind in Canada, the centre will bring Indigenous and non-Indigenous perspectives together

A new psychedelic research centre at VIU is bringing Indigenous and non-Indigenous perspectives together to co-develop programming.

Known as the Naut sa mawt Centre for Psychedelic Research, the institute combines Indigenous, Western and other ways of knowing for the development of psychedelic research and programming. Naut sa mawt is a Coast Salish phrase that means, "working together, as one mind and spirit," as defined by VIU Elder-in-Residence C'tasi:a - Geraldine Manson.

"We recognize that Indigenous healing systems and Indigenous research methodologies have dealt with the complexities of human health from a holistic perspective since time immemorial," said Dr. Shannon Dames, VIU Psychedelic-assisted Therapy Program Chair. "Unlike conventional western therapy, psychedelics involve a lowering of the typical defenses of the nervous system and ego, to access areas of oneself that require a holistic and integrative perspective. As a result, there are additional safety considerations."

The centre is the first of its kind in Canada and is an example of reconciliation in action, said Dames.

"We do this by developing authentic relationships, committed to working through the historical challenges that we have inherited and in doing so, carving a new way forward, together," she said.

Spearheaded by Dames, the centre is co-led by Dr. Georgina Martin, VIU Professor in Indigenous/Xwulmuxw Studies and the centre's Indigenous Research Lead; Dr. Vivian Tsang, UBC Psychiatry Resident and the centre's Biomedical Research Lead; Jimena Chalchi, a Royal Roads University Graduate Student and the centre's Cultural Safety Lead; and Mathew Fleury, Manager of Research and Knowledge Exchange for the First Nation Health Authority. Other partners include the Psychedelic Data Society and the Roots to Thrive program.



"We recognize that Indigenous healing systems and Indigenous research methodologies have dealt with the complexities of human health from a holistic perspective since time immemorial."

Dr. Shannon Dames

VIU Psychedelic-assisted Therapy Program Chair (left)

C'tasi:a - Geraldine Manson

VIU Elder-in-Residence

Dames began her psychedelic-assisted therapy research journey by co-developing a resilience training program called Roots to Thrive, which received provincial funding in 2021. Next, a Psychedelic-assisted Therapy program was established at VIU, supported by Dames and Medical Chair Dr. Pamela Kryskow. The centre is the latest development in this work and is virtual to allow researchers from across Canada to participate.

There are multiple studies in the Naut sa mawt Centre that need funding to launch. Those interested in supporting these research endeavours can contact the VIU Foundation at **Foundation@viu.ca**. For more information on the centre's development, visit: **research.viu.ca/ncpr.** ★

Pelvic health research can help identify gaps and inequities in care



Studies on women's health tend to focus on reproduction. According to VIU researcher Dr. Whitney Wood, this has led to gaps and inequities in care.

Wood, VIU's Canada Research Chair in the Historical Dimensions of Women's Health, argues broadening historical research is important because these studies can inform current practice.

"Understanding the historical roots of gaps in care that continue to disproportionately affect women, non-binary and gender diverse individuals, and those with reproductive organs historically classified as female is an important first step to ongoing efforts to improve pelvic health care in twenty-first century Canada," said Wood.

Wood's research project is called Pelvic Health and Public Health in Twentieth-Century Canada (PH | PH). She and her team are investigating the history of pelvic conditions, including endometriosis and urinary tract infections, from the 1960s to the 2000s. The project will also examine key sites of feminist activism and healthcare surrounding these issues.

"The fact that many of the pelvic health conditions we study include experiences of pain that are often invisible, chronic, feminized and dismissed in a range of health settings, means that telling these stories is especially important," said Wood.

Wood and her research team will examine a range of sources to tell these stories, including medical journals and popular magazines. The project will also digitize new archival materials, which will be available on the Rise Up! a digital archive of feminist activism.

Oral history interviews with those who have lived experience of pelvic pain will be another important source of evidence. The first phase of the project will involve consultation with these patient partners. This initial work is supported by a $25,000 Patient Engagement Supplement Grant from Guiding interdisciplinary Research On Women's and girls' health and Wellbeing, a CIHR-funded Health Research Training Platform that aims to train the next generation of scholars who are working in the area of girls, women and gender-diverse people's health.

Wood and her team received a Canadian Institutes of Health Research project grant of $577,575 to support ongoing research through 2028. ★



Dr. Whitney Wood

VIU's Canada Research Chair in the Historical Dimensions of Women's Health

Improving perinatal, neonatal services in Nunavut village

VIU Adjunct Professor and Sessional Instructor of Social Work Dr. Patricia Johnston was awarded a $500,000 grant from the Canadian Institute of Health Research for her project aimed at improving perinatal supports and services in the community of Arviat, Nunavut.

“This is a big opportunity for us to do the work the community wants us to do, and do it well and do something really substantial,” said Johnston.

The three-year project aims to create knowledge concerning gender and perinatal wellness and facilitate knowledge-sharing activities that amplify Inuit cultural practices and build upon existing capacity in the community.

The goal “is to hire Inuit to train Inuit perinatal support workers within the community,” Johnston said, adding that very few community-based perinatal programs currently exist in Nunavut, “nor one quite like this that involves hiring Inuit to train Inuit to do this really needed work.”

Co-designed with the Aqqiumavvik Arviat Wellness Society and based on priorities identified by Arviarmiut (people of Arviat), the Ilagiingniq project involves a two-year pilot program to strengthen the relationship between gender, wellness and cultural traditions/activities.

Research will focus on Inuit-specific health and wellness indicators and follow the Aajiiqatigiingniq (a cultural knowledge and consensus decision-making approach among Inuit) methodology developed by Aqqiumavvik, which outlines four stages to research according to Inuit cultural systems:

- Relationship-building,
- Shared understanding,
- The sharing of lived experiences, and
- Relational consensus-building.

The “cut-and-paste, colonial approach” that has typically been seen thus far has led to a lot of problems and a lot of harm, she said.

For example, Johnston said Inuit women must leave their families and communities to give birth. As a result, they receive limited perinatal care, support and access to resources and information in their first language.

“These circumstances are inherently stressful and create isolating contexts for women at a time when they are most vulnerable,” she said.

And it’s not just that more supports and services are needed, they need to be designed by, tailored to and managed by Inuit, she said.

“I believe that Arctic wellness is an evolving academic field and we’re really starting to take a good look at what currently exists in this interdisciplinary field and learn from it,” she said. “This project wouldn’t have been possible without such an incredible team and the community being very clear about what their priorities are.” ★



“I believe that Arctic wellness is an evolving academic field and we’re really starting to take a good look at what currently exists in this interdisciplinary field and learn from it.”

Dr. Patricia Johnston

VIU Adjunct Professor and Sessional Instructor of Social Work

Chemistry professor building a new tool to map molecules in tissue

State-of-the-art technology will provide more detailed picture of metabolites

Dr. Kyle Duncan, a VIU Chemistry Professor, is developing mass spectrometry technology that could help discover new treatment options for cancer.

He's building custom mass spectrometry imaging technology to help get a more accurate picture of metabolites in tissue. Metabolites are small molecules that control the metabolism of our cells. Changes in the presence or number of certain metabolites in specific regions of tissue can result in disorders or be a sign of serious and chronic diseases such as diabetes or cancer.

Current methods to examine tissue metabolites require cutting out specific regions for analysis by a mass spectrometer, but this means information from the adjacent cells is lost. Duncan's method is to image metabolites directly in specific regions of tissue, which gives a more accurate and detailed picture. To apply this technology, he is currently collaborating with other members of MetaboBC to help understand how metabolites are distributed in healthy and cancerous tissue with the aim of discovering potential treatment options to disrupt cancer growth and progression.

Duncan received a Natural Sciences and Engineering Research Council of Canada Discovery Grant of $125,000 over five years to pursue his research. He also received a Discovery Launch Supplement, a grant for early career researchers, of $12,500.

"Our body's metabolic processes are highly dynamic and can compensate or react to changing conditions at the molecular level, creating a moving puzzle with many intricate pieces," said Duncan. "The fundamental research enabled by this grant allows me to pursue my passion – exploring this boundary between chemistry and biology."

Duncan's state-of-the-art technology provides images similar to those a camera produces. A camera has a combination of red, green and blue pixels to create the image. Instead of colours in each pixel, mass spectrometry image pixels provide a simultaneous snapshot of different metabolites in tissue, anywhere from one to thousands. This more detailed picture will allow scientists to determine if metabolites are higher in particular regions of tissue, and if so, why. ★



"The fundamental research enabled by this grant allows me to pursue my passion – exploring this boundary between chemistry and biology."

Dr. Kyle Duncan

VIU Chemistry Professor

Q&A with Math Professor Melissa Huggan



Dr. Melissa Huggan, a VIU Math Professor, received the 2022 Kirkman Medal from the Institute of Combinatorics and its Applications (ICA). The award recognizes excellent research by fellows or associate fellows of the ICA early in their research careers. Huggan joined VIU in August 2022.

We caught up with Huggan to talk about the Kirkman Medal and her research.

How does it feel to receive the 2022 Kirkman Medal from the ICA?

It is an immense honour to receive the 2022 Kirkman Medal from the ICA. Being recognized for my research contributions by the mathematical community is very rewarding.

Why did you choose to examine combinatorial game theory and what did you discover?

Combinatorial game theory is the mathematical study of two-player games, where players move alternately. Both players always know all game states throughout play, and there is no element of chance such as dice or spinners. Using mathematics, we aim to determine the best strategies for each player, who wins the game (game outcome), and by how much do they win the game (game value).

I took a class in combinatorial game theory during my undergraduate degree that opened my eyes to a whole new area of study. As with many topics, the more you learn, the more you realize there is to learn.

Tell us about some of your research that examines pursuit-evasion games, in particular your work relating to the classic game of Cops and Robbers.

Cops and Robbers is played on a network. A network is a set of nodes, which are connected if there is a relationship between them. A map is a network, where locations are nodes and roads are connections between them.

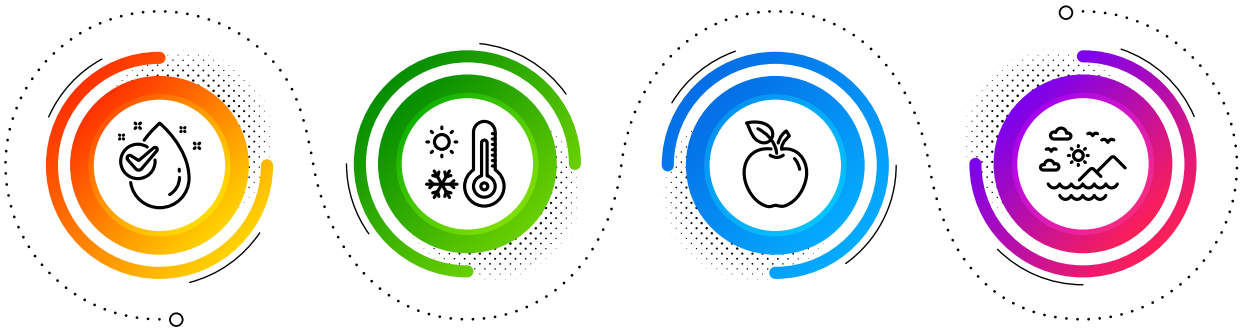
Pursuit-evasion games are adversarial games played on networks, where one player is a threat (typically called the robber), and the other player (typically called the cops) is trying to neutralize the threat. The game starts by the cop placing themselves on a node, then the robber placing themselves on a different node. Then they alternate turns, starting with the cop, where they can move from one node to another if they are connected. If the cop can occupy the same node as the robber, then the threat is neutralized (or captured), the game is over and the cop wins. If this never happens, then the robber wins. This model has perfect information, meaning both players always know all game states. Research on Cops and Robbers often focuses on how to minimize the resources required to capture the robber. Resources include the number of cops and the time it takes to capture.

I am studying a variant of the game where the robber damages each unique location they visit. The robber's goal is to damage as many nodes as they can. The cop's goal is to limit the damage. A central question is how much of the network can the cop protect? To solve questions in this research area, we use our mathematical understanding of the structure of networks to develop strategies for the cop and robber players respectively. This models the real-life problem of containing the spread of misinformation on a network. ★



Dr. Melissa Huggan

VIU Math Professor



Innovative chemistry research developing solutions for real-world issues

Dr. Erik Krogh, a VIU Chemistry Professor, is expanding the frontiers of mass spectrometry to develop real-time measurements of emerging contaminants in real-world samples.

Access to clean air, water and food is critical to the quality of life in Canada, said Krogh, who is also Co-Director of VIU's Applied Environmental Research Laboratories. Thousands of chemical pollutants enter the environment as individual compounds or complex mixtures during their production, use and disposal at concentrations that vary widely over time and space. Existing tools to measure the impact of these pollutants on the environment are costly and time intensive, which limits their widespread use.

"Our research is aimed at developing sensitive and selective chemical analysis methods that are fast, simple and robust. This science enables rapid screening methods for environmental toxins, real-time monitoring of chemical processes and the mobilization of high-precision measurements from the laboratory setting to the field to provide information 'when' and 'where' it is needed," said Krogh. "The goal of this research is to better understand how contaminants are distributed in the environment and how quickly they are transformed."

Krogh received a Natural Sciences and Engineering Research Council of Canada (NSERC) Discovery Grant of $180,000 over five years to pursue his research. The grant supports foundational science to develop new mass spectrometry methods and apply them to solve real-world issues.

Krogh's methods can be applied to atmospheric chemistry to address air quality and climate change as well as monitor pollution in water and soil. Some of the current applied research projects include air quality and greenhouse gas monitoring at regional sites such as landfills and detecting tire wear contaminants, which are extremely toxic to salmon in stormwater and urban streams.

"Applied research would not be possible if it were not for that fundamental science that allowed us to develop innovative methods that can be taken on the road in the mobile mass spec lab," said Krogh.

Most of Krogh's NSERC grant will be used to support undergraduate and graduate student research at VIU. These research opportunities give students valuable hands-on learning experiences. ★



"Our research is aimed at developing sensitive and selective chemical analysis methods that are fast, simple and robust."

Dr. Erik Krogh

VIU Chemistry Professor and Co-Director of VIU's Applied Environmental Research Laboratories

Gaining a global research perspective



Angelina Jaeger

VIU alum, Bachelor of Science ’23

Angelina Jaeger expanded her research horizons for three months in Germany after earning a spot in a prestigious summer internship program.

She received a German Academic Exchange Research Internships in Science and Engineering scholarship. Jaeger is the first VIU undergraduate student to receive this scholarship and competed with students from North American, British and Irish universities. Only 320 scholarships were awarded.

“I was shocked and happy. Excited,” said Jaeger about receiving the scholarship, adding that it was a big step for her to study overseas. “Living alone internationally was an intimidating step in my life. I’m happy with myself. I know I’m capable and I showed that while I was there.”

Jaeger graduated from VIU with a Bachelor of Science, major in Chemistry, in June 2023. She worked under the supervision of PhD student Anika Rogoll at Technische Universität Bergakademie Freiberg, in Freiberg, Germany. She assisted in Rogoll’s trace elemental analysis study that sought to develop new calibration materials for measuring metals in soft samples like tissue. The aim was to have a material with a similar texture and properties to human tissue, and for it to be easy to make and use. This material could then be used in the medical field for measuring the amount of metal that may transfer from a medical metal implant into someone’s tissue. To test the materials, she used Laser Ablation Inductively Coupled Plasma Mass Spectrometry, which is a technology that allows scientists to perform elemental analysis on solid samples.

“I’m very happy about the opportunity to include Angelina as an intern in my research this summer,” said Rogoll. “We did some interesting experiments and obtained good results, which I presented as a poster on an international conference a few weeks later. Angelina was a co-author of this poster.”

Jaeger also conducted undergraduate research at VIU’s Applied Environmental Research Laboratories (AERL) while studying at VIU. Jaeger said it was interesting to see the real-world application of things she had been learning in class. And conducting undergraduate research helped her decide to pursue a master’s degree in chemistry.

Jaeger said it was a great experience working at the AERL and the scholarship she completed allowed her to gain a global research perspective. ★

Vancouver Island University

2022 Research Award Recipients

VIU launched the annual Provost's Awards for Outstanding Scholarship, Research and Creative Activity in 2018 to publicly recognize the efforts by VIU faculty and to support the university's core commitment to excellence and community engagement.

The Provost Award Recipients for Outstanding Scholarship, Research and Creative Activity are:

Early Career Research Excellence Award



Dr. Whitney Wood | Faculty of Arts and Humanities

Since becoming VIU's Canada Research Chair in the Historical Dimensions of Women's Health in 2019, Wood has personified research excellence. Her extensive and multi-faceted research endeavours, including numerous publications, considerable editorial work, multiple conference presentations, ongoing collaborative partnerships with colleagues and students, successful grant applications and community engagements have significantly heightened VIU's research profile within the academic community and beyond.

Scholarship, Research and Creative Activity Service Award



Dr. Eric Demers | Faculty of Science and Technology

Demers is a VIU Biology Professor and has been a Registered Professional Biologist for more than 15 years. He is a certified bird banding trainer and conducts a bird monitoring and banding program at VIU. One of his research goals is to conduct public demonstrations where people of all ages can learn about bird identification, ecology, evolution and conservation.



Lyn Locke | Scholarship, Research and Creative Activity Office

Locke is the Administrative Assistant and Committee Support for the Scholarship, Research and Creative Activity (SRCA) Office. She is responsible for providing administrative support to SRCA's Associate Vice-President (AVP). Locke also supports committees that the AVP chairs or is a member of and assists with pre-award internal applications.

Graduate Research Mentor Award



Dr. Farhad Moghimehfar | Faculty of Management

Moghimehfar is a faculty member in VIU's Department of Recreation and Tourism Management. His teaching and research interests are sustainable tourism and equity as well as diversity and inclusion in leisure and recreation. Before joining VIU, Moghimehfar served as an instructor at the University of Alberta and as an assistant professor at the University of Northern BC. He has provided community and professional advisory services and supervised graduate students in Canada and internationally.

Dean's Scholarship, Research and Creative Activity Award



Maureen O'Connor | Faculty of Health and Human Services

O'Connor is a Bachelor of Science in Nursing (BSN) Professor. She has been teaching VIU nursing students since 2002. Her expertise and leadership in perioperative practice was recognized by the BC Ministry of Health in 2022. O'Connor was invited to participate in the provincial task group identifying a BSN perioperative learning pathway. She is a leader in the newly established provincial BSN perioperative learning pathway which focuses on student retention. As part of O'Connor's Scholarship, Research and Creative Activities she is assessing the effectiveness of the pathway integrated within the final fourth-year practicum placement to increase the number of perioperative nurses in the health-care team.



Dr. Pam Shaw | Faculty of Social Sciences

Shaw, an accomplished educator and scholar, is the Director of VIU's Community Planning Program. Her credentials include 3M Teaching Fellow and Research Director of the Mount Arrowsmith Biosphere Region Research Institute (MABRRI). Shaw recently secured more than $1 million dollars in funding for MABRRI. Her contributions to innovative new programming include a Professional Indigenous Lands Management Certificate. Her co-authored textbook *Planning Canadian Communities,* 7th Edition is the most frequently adopted planning textbook across Canada.



Dr. Paula Waatainen | Faculty of Education

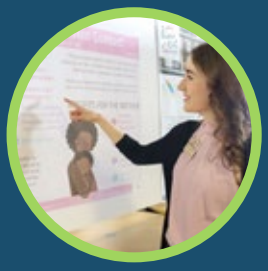
Waatainen teaches social studies methods to future teachers in our Bachelor of Education programs. She conducts design-based research in collaboration with teachers who want to build their assessment literacy in designing assessments of competency. She is passionate about situating learning in real-world problems, processes and places, and in building student capabilities in design and critical thinking within social studies and other areas of learning.

CREATE 2023

CREATE celebrated its 10th year in 2023. The annual conference is VIU's celebration of student scholarship, research and creative activity where students can share their accomplishments with peers, faculty and the public. The 330 participants presented their projects in different formats, including posters, 10-minute presentations, podcasts, photography, rants, performances, shorts and the Three Minute Thesis Competition.

The conference successfully provided VIU students with the opportunity to share their projects, mobilize knowledge and celebrate it! Below are some highlights.







Keynote address – Impact(ful) communication

Students, faculty and staff welcomed Roanne Weyermars, one of Canada's Top 100 Most Powerful Women, in the Royal Arbutus Room for the keynote address. Weyermars shared her expertise in an interactive presentation titled *Impact(ful) Communication* and inspired the audience with strategies for more effective and inclusive communication.

UN Sustainable Development Goals

This year, students were encouraged to identify which UN Sustainable Development Goals (SDGs) were addressed in their projects, and four awards were given to students who best linked their projects to the SDGs. The SDGs most indicated by students as linked to their projects were: Goal 3 – Good Health and Well-being; Goal 10 – Reduced Inequalities; Goal 4 – Quality Education; Goal 5 – Gender Equality and Goal 15 – Life on Land.

VIU Sexual Health Education

A group of students completing a project for the Community-Based Applied Interdisciplinary Research course were recognized for their outstanding work on sexual health education. The project titled *Preparedness and Comfort Levels in Providing Sexual Health Education on Vancouver Island* investigated the knowledge and comfort levels of teachers-in-training at VIU and UVic with sexual health education topics. Sarah Sheppard (Psychology), Marni Brown (Master of Business Administration), Kaylie Curtis (Criminology) and Lola Raymond-Bhatt (Social Work) received four CREATE Awards, including Best Undergraduate Poster and the Positive Space Award.

Three-minute Thesis Competition

The Three Minute Thesis (3MT®) challenged graduate students to present their research and its wider impact in three minutes or less in an accessible and compelling way. The 2023 VIU champion was Natalie Lambert, Master of Education in Educational Leadership, who presented her thesis *The Arts in Secondary Education: More than Just an Elective.* Lambert represented VIU in the Western Regional 3MT competition at the University of Saskatchewan, where she discussed how participation in high school fine arts programs influenced the lives of graduates in BC.

VANCOUVER ISLAND UNIVERSITY

REACH Awards

VIU's REACH Awards financially support undergraduate and graduate students to conduct their own original research under the mentorship of a faculty member. This year 15 awards of $3,000 each were given out.

The following students received 2022-23 REACH Awards:

Sierra De Buysscher-Nailor | The impacts of climate change on the health and habitat of the western honeybee, mentored by Dr. Jeff Lewis.

Taylor Patenaude | Social anxiety symptomology and its relationship to personal growth initiative, mentored by Dr. Melanie O'Neill.

Erika Seaman | The population ecology of *Plagiorhyncus cylindraceus (Acanthocephala)* in American robins *(Turdus migratorius)* from central to south Vancouver Island, mentored by Dr. Tim Goater.

Shannon Kavannagah | Investigating climate change anxiety, personality and time perspective in Canadian adults, mentored by Dr. Melanie O'Neill.

Kyle Whittemore | Microbial ecology and soil properties of naturalized meadows in Vancouver, BC, mentored by Dr. Andrew Loudon.

Jenna Pierce | Coordination, advocacy and burnout: The impact of coordinated community responses on violence against women advocates, mentored by Dr. Melanie O'Neill.

Brayden Boyd | Occupational injury characteristics and perceived justice of workers' compensation in British Columbia: A multiple mediation analysis, mentored by Dr. Melanie O'Neill.

Kristen Farley | The impact of utilizing disability services and perceived faculty knowledge and attitudes on undergraduates with learning disabilities, mentored by Dr. Melanie O'Neill.

Hannah Sadler | Identification of nectar microbes of flat spurred piperia *(Platanthera transversa),* mentored by Dr. Jasmine Janes and Dr. Andrew Loudon.

Amy Tan | Food anticipatory activity in drosophila melanogaster: Unfound or unfounded?, mentored by Dr. Elliot Marchant.

Tamara Hansen | Hearing our students' voices – An exploration of young adolescent students' perspectives on inclusive classroom teaching practices, mentored by Dr. Mary Ann Richards.

Danielle McKinney | Supporting learners with Down syndrome using the behavioural phenotype and universal design for learning in inclusive classrooms, mentored by Alison Taplay.

Heather Finlay | A multi-perspective study of effective learning for students with extensive support needs, mentored by Dr. Mary Ann Richards.

Kim Cobb | Pan-Canadian study of Montessori middle schools, mentored by Marian Riedel.

Naomi Perry | Health promotion: Strategies for supporting students with intellectual and developmental disabilities, mentored by Dr. Bob Esliger.



Taylor Patenaude



Brayden Boyd



Hannah Sadler



Danielle McKinney

VANCOUVER ISLAND UNIVERSITY

Major Graduate Award Winners

In 2022-23, seven VIU students received British Columbia Graduate Scholarships (BCGS) and two students received Canada Graduate Scholarship – Master's Program (CGS-M) Awards. The BCGS awards are made possible by funding provided the Government of British Columbia and are valued at $15,000 each. The CGS-M awards are made possible by joint funding from the Social Sciences and Humanities Research Council; Natural Sciences and Engineering Research Council of Canada; and Canadian Institutes of Health Research, also known collectively as the Tri-Agencies, and are valued at $17,500 each.

Recipients for the British Columbia Graduate Scholarship are:



Nova Heartland
Master of Education in Educational Leadership



Alicia McLean
Master of Community Planning



Hayden Kenneth Taylor
Master of Education in Educational Leadership



Courtney Miller
Master of Community Planning

Joseph Allan Starr
Master of Education
in Educational Leadership

Nicky Recollet
Master of Geographic
Information Systems Applications

Patrick McGuiness
Master of Arts
in Sustainable Leisure Management

Recipients for the Canada Graduate Scholarships Master's Program are:



Robin Abernethy
Master of Geographic Information Systems Applications

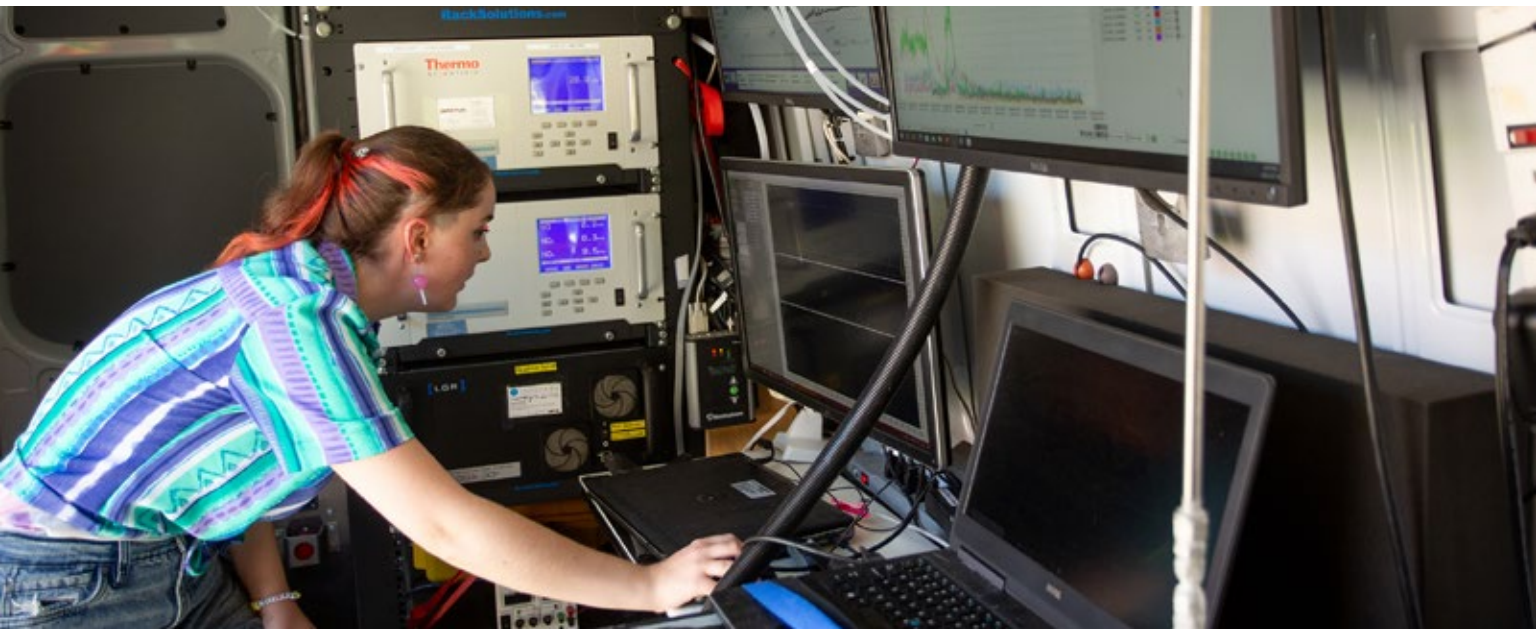


Hannah Dudney
Master of Arts in Sustainable Leisure Management

VANCOUVER ISLAND UNIVERSITY

Undergraduate Student Research Awards

Each Undergraduate Student Research Award (USRA) financially supports undergraduate students to work on a faculty-based research project for the summer. The awards are made possible thanks to funding provided by the Natural Sciences and Engineering Research Council of Canada. In 2022-23, nine VIU students received funding.



Lily Eggert

Lucas Abruzzi | Modified-substrate paper spray mass spectrometry for the determination of algal toxins in water samples and fish tissues, mentored by Dr. Chris Gill.

Haley Andersen | Home ranges and movements of Vancouver Island marmots, *Marmota vancouverensis,* of the Mount Washington colony, mentored by Dr. Jamie Gorrell.

Brooke Chapman | The impacts of ocean acidification (OA) on shell formation in OA-susceptible and OA-resilient Pacific oysters, mentored by Dr. Timothy Green.

James Dennis-Orr | Changes in early-life microbial communities disrupt community assembly dynamics and survivorship of Pacific oysters, mentored by Dr. Andrew Loudon and Dr. Timothy Green.

Lily Eggert | Understanding the fate and distribution of atmospheric volatile organic contaminants, mentored by Dr. Erik Krogh.

Krystyn Forbes | Analysis of mitochondrial DNA of the Canada lynx, mentored by Dr. Jamie Gorrell.

Simon Hazel Maguire | Molecular dynamics investigation of the interplay between volumetric and thermodynamic properties of pressure-resistant lactate dehydrogenase, mentored by Dr. Heather Wiebe.

Savannah Mercer | Molecular docking studies of carfentanil precursors in the μ-opioid receptor, mentored by Dr. Heather Wiebe.

Denman Moody | Selective breeding program for the Pacific oyster *(Crassostrea gigas)* and the Japanese scallop *(Patinopecten yessoensis),* mentored by Dr. Timothy Green.

Vancouver Island University KEY FUNDING SOURCES

Vancouver Island University faculty and students could not participate as actively as we do in research and scholarly activity without the support of our research grant funding agencies. We would like to publicly thank and acknowledge their continued support.

Here are some of the key groups that have funded projects in this fiscal year.

Michael Smith Foundation for Health Research
MITACS
Canadian Institutes of Health Research
Tri-Council Institutional Programs Secretariat
Natural Sciences and Engineering
Research Council of Canada
Kenneth M Molson Foundation
University of Calgary
BC Parks
BC Cancer
Terry Fox Research Institute
Government of the Northwest Territories
Fisheries and Oceans Canada
Municipality of North Cowichan
BC Ministry of Water, Land and Resource Stewardship
BC Ministry of Agriculture and Food
Lululemon Athletica
University of Alberta
Tula Foundation
Canada Foundation for Innovation
BC Knowledge Development Fund
Thermo Fisher Scientific Inc.
Social Sciences and Humanities
Research Council of Canada
Indigenous Services Canada
Gitksan Watershed Authorities
Regional District of Nanaimo
Pacific Salmon Foundation
National Aboriginal Land Managers Association
Sitka Foundation
University of Saskatchewan
Council for the Advancement of Native Development Officers



Town of Qualicum Beach
Environment and Climate Change Canada
Island Health
Comox Valley Regional District
Greater Vancouver Water District
Associated Medical Services
University of Waterloo
University of Northern British Columbia
BC Innovation Council
Jim and Janice Parker Foundation Inc.
Moss Rock Park Foundation
AMS Healthcare
Roots to Thrive Society for Psychedelic Therapy
Global Village Victoria
Growing Opportunities Farm Community Co-op
Yellow Point Ecological Society
Sage Initiative
Creative Salmon Ltd.
BC Center for Aquatic Health Sciences
Snuneymuxw First Nation
Environmental Career Organization Canada
Co-operative Education & Work-Integrated Learning Innovation Hub
IISAAK OLAM Foundation
OneCup AI
Islands Trust Council
Tourism Vancouver Island "4VI"
Odyssey Medical Inc.
Capital Regional District
Institute for Clinical Evaluative Sciences
Dave Clough Environmental Consulting
Nanaimo River Hatchery
Creative Salmon Sea Spring Hatchery
Big Qualicum Hatchery
International Centre for Sturgeon Studies
Taste of BC Aquafarms
Marion Baker Hatchery
Pacific Biological Station
Mowi Canada West
University of Ottawa
City of Nanaimo
Canadian Institute for Substance Use Research
Thompson Rivers University
Simon Fraser University
SFU Community Engaged Research Initiative
North Island College
BC Centre on Substance Use
Comox Valley Art Gallery
AVI Health & Community Services
Forestry Innovation Investment Ltd.
Nanoose Economic Development Corporation
Crimson Coast Dance Society
Nanwakolas Council Society
Qualicum Beach Chamber of Commerce
Parksville & District Chamber of Commerce
Institute for Liberal Studies
Canadian Sport Institute Calgary
Georgian Bay Mnidoo Gamii Biosphere
Alberni Valley Tourism Association
Grant McEwan University
Canadian Biosphere Reserves Association
Saint John's Legacy Foundation
Bird Studies Canada
BC SUPPORT Unit Vancouver Island
RBC Foundation
K'ómoks First Nation
Partnership for Water Sustainability in British Columbia
Max Bell Foundation
Gainey Foundation
Roche Canada
Vancouver Foundation
BC Ministry of Forests
Invasive Species Council of BC
Canadian Commission for UNESCO
Tseshaht First Nation
Shell Canada
Hamber Foundation
World Wildlife Fund Canada
Alongside Wildlife Foundation
Trottier Family Foundation
VoltSafe Inc.
Simpl-Phi Wellness
Cowichan Green Community
Global Emerging Leadership Program
Loonie Times
La Dole Rugs
Project Rescuers
Salts and West Clothing
NutritionLink Services Society
WorkSafeBC
City of Vancouver
Shred Capital
Employment and Social Development Canada
Smithsonian National Museum of Natural History
Meso Scale Discovery
The National Centre for Truth and Reconciliation
BC Children's Hospital
Ditidaht First Nation



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900 Fifth St. Nanaimo, BC, Canada | Building 305 (Library), Room 446 Main Office

For general inquiries: Phone **250.740.6324** | email **research@viu.ca** | website **research.viu.ca**