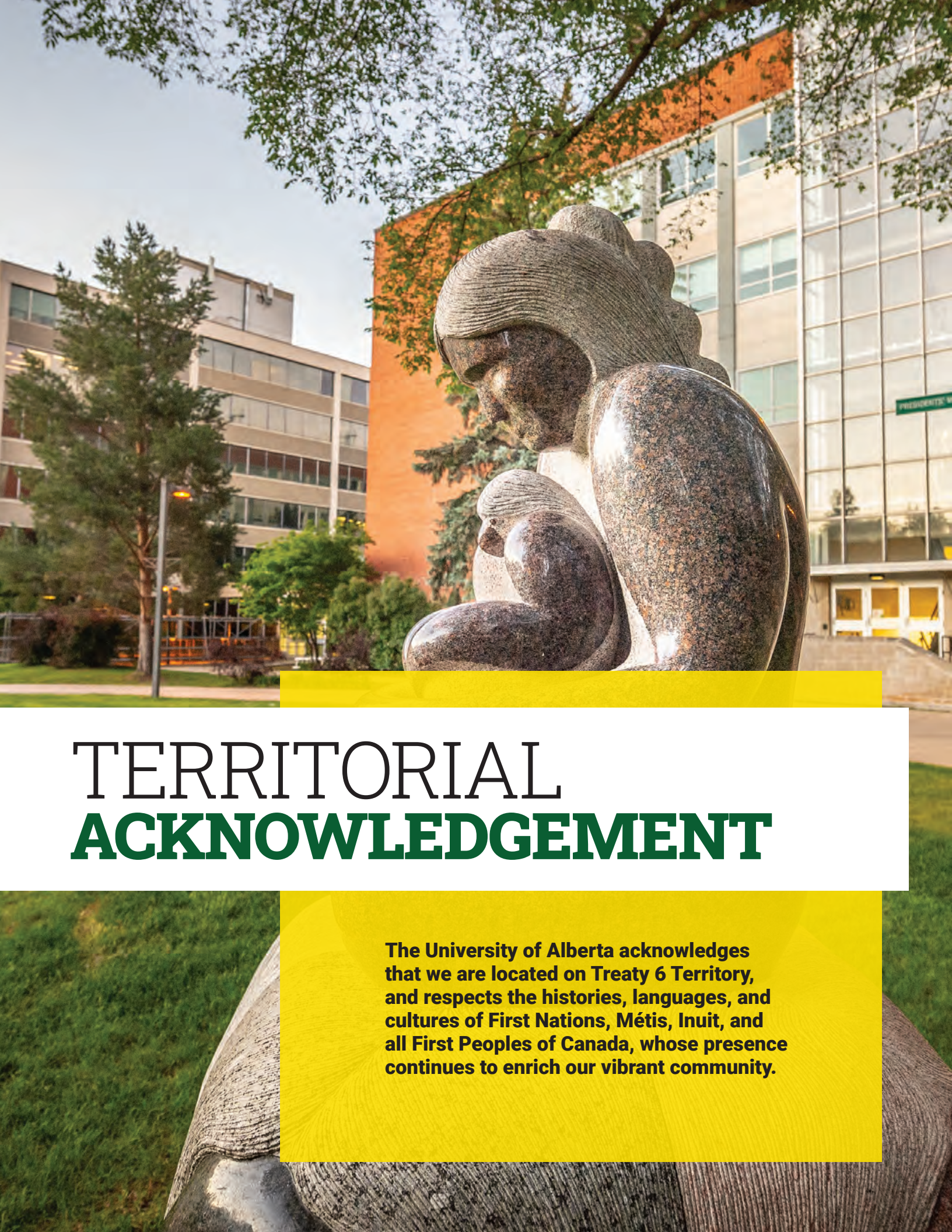
UNIVERSITY OF ALBERTA

SUMMER 2026

RENEW

Department of Renewable Resources



TERRITORIAL **ACKNOWLEDGEMENT**

The University of Alberta acknowledges that we are located on Treaty 6 Territory, and respects the histories, languages, and cultures of First Nations, Métis, Inuit, and all First Peoples of Canada, whose presence continues to enrich our vibrant community.

Photo credit: René Belland

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Chair's Message

Welcome to the Department of Renewable Resources. We are a vibrant community of dedicated educators, engaged students and internationally recognized researchers working on issues of critical importance to Alberta, Canada and the global community.

"Engagement with external partners across the agriculture, forestry and environmental sectors remains essential for driving innovation and impact."

Nadir Erbilgin

Our department is widely recognized, both nationally and internationally, for excellence in research and training. We prepare the next generation of scientists and professionals to address grand challenges in environmental sciences, sustainable agriculture, soil science and forestry. Our strong and long-standing partnerships with government and industry are unique in Canada and significantly enhance our ability to translate research into real-world solutions. We are also supported by outstanding physical space, infrastructure and core facilities, and exceptional technical and administrative staff.

The department offers an exceptional range of opportunities for undergraduate and graduate students. Our programs draw on a broad and diverse portfolio of faculty research expertise and a rich selection of courses. We believe that excellence in research underpins effective teaching and that grappling with complex environmental challenges continually generates new opportunities for teaching and research. Our students are central to everything we do, and we maintain high standards of excellence for both instructors and learners.

As chair, my priority is to build on our strong academic foundation while strategically strengthening emerging areas, including Indigenous resource management and other interdisciplinary fields. Achieving this requires leveraging unique institutional strengths, fostering collaboration within and beyond the department and recruiting new faculty to expand our capacity. Engagement with external partners across the agriculture, forestry and environmental sectors remains essential for driving innovation and impact.

Our undergraduate programs in forestry and environmental and conservation sciences are growing steadily. We have recently established a new transfer agreement between **Keyano College** in Fort McMurray and the University of Alberta, creating a direct pathway for environmental technology graduates to pursue science degrees in environmental sciences and forestry. In addition, a memorandum of understanding with the **Czech University of Life Sciences Prague** supports collaborative research initiatives and student exchange opportunities, with further academic enhancements underway.

Both thesis-based and course-based graduate programs continue to thrive, offering rigorous training, interdisciplinary perspectives and strong mentorship.

I invite you to explore our website, enrol in our courses, engage with our faculty and staff and consider joining our undergraduate or graduate programs. By joining Renewable Resources, you will gain the knowledge and skills to improve the quality of your daily life and contribute meaningfully to a more sustainable future. I hope you will join our community of scholars, take full advantage of the opportunities we offer and build a rewarding and impactful career.

NADIR ERBILGIN
Professor and Chair
Department of Renewable Resources
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Department strategic plan

2026-2031

Vision statement: Our vision is to be a leading academic department that advances the science, practice and integration of forests, soils, water and biodiversity through innovative research, teaching and outreach, thereby supporting sustainable and resilient ecosystems for both present and future generations.

Mission statement: Through education, research and service, we prepare the next generation of leaders, practitioners and scholars to manage renewable resources sustainably. We engage with local, national and global partners to generate knowledge, inform policy and support communities in addressing today's most pressing environmental challenges.

Goals and outcomes

Strengthen and renew undergraduate and graduate education:

- Students develop strong disciplinary expertise while gaining interdisciplinary skills to address complex natural resource issues.
- Experiential and field-based learning opportunities are embedded across programs.
- Graduates are well prepared for careers in research, government, industry, Indigenous communities and NGOs.

Advance innovative, interdisciplinary and community-engaged research:

- Faculty and students collaborate across disciplines to address environmental change, climate adaptation and sustainable resource use.
- Research outcomes inform policy, management practices and public understanding of renewable resources.
- Knowledge is disseminated through peer-reviewed publications, public outreach and knowledge mobilization with communities.

Deepen partnerships with Indigenous communities and knowledge systems:

- Indigenous knowledge and perspectives are respectfully integrated into teaching, research and outreach.
- Collaborative projects support Indigenous self-determination in resource management.
- Students and faculty gain intercultural competencies to work effectively with Indigenous partners.

Strengthen public and stakeholder engagement:

- Outreach programs connect research and teaching with communities, industries, governments and the broader public.
- The department is recognized as a trusted source of expertise on renewable resource issues.
- Alumni, donors and stakeholders remain actively engaged with the department's mission.

Foster an inclusive, supportive and sustainable departmental culture:

- Faculty, staff and students feel valued, supported and respected, regardless of background or identity.
- Mentorship and professional development opportunities enhance career growth for students, staff and faculty.
- Succession planning ensures renewal of faculty expertise and continued strength of programs.

Renewable Resources degree programs

Undergraduate programs

BSc in Environmental and Conservation Sciences

MAJORS

- Conservation Biology
- Environmental Economics and Policy
- Human Dimensions of Environmental Management
- Land Reclamation
- Northern Systems (A shared initiative with Yukon University)
- Wildlife and Rangeland Resources Management

BSc in Environmental & Conservation Sciences & BA in Native Studies (5 years)

A shared initiative of ALES and the Faculty of Native Studies.

BSc in Forestry

BSc in Forest Business Management

A shared initiative of ALES and the Alberta School of Business.

BA in Environmental Studies

A shared initiative of ALES and the Faculty of Arts

CONCENTRATIONS

- Culture, Society, and Peoples of Canada
- Food and Society
- Politics, Society and the Global Environment

Graduate programs

Course-based and thesis-based master's and doctoral programs offered include:

- MSc, MBA/MAg in Agriculture and the Environment
- MSc, PhD in Conservation Biology
- MSc, PhD in Environmental Soil Science
- MSc, MBA/MF, PhD in Forest Ecology and Management
- MSc, PhD in Reclamation and Restoration of Land and Water
- MF Sustainable Forest Management
- MF specialization in Environmental and Wildlife Conservation
- MF specialization in Ecology and Ecosystem Restoration
- MAg Conservation and Restoration of Land and Water

Research and academics

Photo credit: John Acorn

Birding

John Acorn

In the 2025 version of this three-day section of ENCS 299, 20 fortunate students (most of whom are conservation biology majors) spent their time "birding" with instructor John Acorn, and Colleen Sutheimer, a carefully chosen teaching assistant. At least that's what it might look like at first glance. Unlike the hobby of bird watching, however, this course focuses on the more scientific aspects of bird study (and yes, some hobby birders care about this aspect as well). Students learn the basics of bird identification by sight and by sound, and the various methods for standardizing their observations prior to data analysis.

The first day is spent at scenic Chickakoo Lake Recreation Area, west of Edmonton. On the second, students prowl the Whitemud Ravine Nature Reserve in the city's west end, and on the final day they head east to the Beaverhill Bird Observatory, where the biologists on staff provide a demonstration of bird banding techniques, and other methods for tracking bird migration. This gives the class opportunities to observe various bird species in a variety of natural environments during the early stages of fall migration. Species we have encountered in past years include American goshawk, sora and Cape May warbler, in addition to dozens of more commonly encountered birds. Students also learn how to identify shed feathers, bird nests and bird tracks.

Honesty, objectivity and humility are perhaps the most important skills emphasized in the course, however, since not all of these identification tasks are as easy as they may seem at first glance. The primary "deliverable" for each student is a set of comprehensive field notes. Students get hands-on familiarity with sound recording and analysis. Students also learn more about binoculars, and the history of binoculars, than they ever thought possible, thanks to the use of John Acorn's extensive collection of binocular optics, spanning the entire history of the technology.

"Species we have encountered in past years include American goshawk, sora and Cape May warbler, in addition to dozens of more commonly encountered birds."

John Acorn

Some students from past years have now found work in bird-related environmental consulting, and some are now pursuing ornithological master's or doctoral degrees. One graduate and former teaching assistant, Emelie Dykstra, is now with the Beaverhill Bird Observatory, and was proud to host the class on the final day.

All will go forward in life with a greater awareness and appreciation for birds — a skill that will enhance their environmental understanding wherever they may go in the future.

Photo credit: René Belland

Mosses of Alberta

René Belland

Special Topics in Field Skills and Their Application in the Environmental and Conservation Sciences: Mosses of Alberta is an intensive, three-day introduction to the field identification of the common mosses that live in natural habitats of central Alberta. Students learn field morphological characters that can be easily seen with either the eye or a hand lens. They also learn collecting techniques, sampling and recognizing microhabitats that are important for mosses.

Over the duration of the course, students visit three different areas: two protected parks and a ravine in the heart of Edmonton. The focus at each area differs, but includes a diversity of habitat types comprising mixed-wood and deciduous forest, conifer forest, peatland and old growth riparian forest. At each area, students visit several habitats where they are taught how to sample species for biodiversity analysis and how to identify each species by sight alone or by using a hand lens. In addition, they learn each species' microhabitat. The course assignment is a short report that answers questions related to patterns of habitat and microhabitat diversity, and the environmental factors that contribute to these patterns.

This short course has been well received by the participants. In addition to learning about the conservation and ecology of mosses, the students gain a greater appreciation of the diversity of Alberta mosses, not just from the numbers perspective but also from a morphological viewpoint. Because almost all mosses are small, they are frequently overlooked or said to all look the same.

Consequently, most students are surprised at the beauty of moss plants when they take a closer look! For most, the course is an eye-opener — and many of the students continue their new-found interest by registering in the full-term course about the mosses of the province (REN R 327).

Photo credit: Supplied

Future Energy Systems (FES) research program

Anne Naeth

Since its launch in 2017, the University of Alberta's Future Energy Systems (FES) research program has supported more than 170 researchers and more than 1,350 graduate students, postdoctoral scholars and other highly qualified personnel in conducting diverse, multidisciplinary research to investigate the energy transition, its technologies and environmental and social impacts. The program has also placed an emphasis on public education, providing science-communication training to graduate students and working with school boards, libraries, science centres and major public events to create opportunities to share research with the public.

Through the FES outreach and engagement program, staff and researchers have interacted with more than 130,000 people at in-person events, and the program's YouTube videos have been viewed more than 180,000 times. They have also launched a series of educational storybooks, *The Energy Adventures of Tommy and Remi*, which have been distributed for free to a range of school and public libraries across Canada.

As part of this program, ALES researchers and students have been tapped on numerous occasions to share activities that highlight land reclamation and water remediation using various new and novel processes and technologies, and to explore the social and economic implications of energy transition for communities across Alberta and beyond. Through fun activities such as the popular Dungeons and Dragons-style Become an Earth Doctor game — offered in partnership with the Land Reclamation International Graduate School (LRIGS) — and characters such as the Alberta Land Institute's Walter the Worm, who teaches about soil health, FES has helped young people across Alberta learn more about the challenges faced by our environment, and the decisions that they must make in the years to come.

During the Alberta Emerald Foundation's 34th annual awards ceremony, FES' expansive outreach and engagement program was recognized in the education category. Assistant director Kenneth Tam, who has led the program's communications portfolio since its inception, joined outreach and engagement lead Valerie Miller, architect of the expansive FES outreach and education portfolio, in accepting the trophy.

Originally launched with $75 million from the Government of Canada's Canada First Research Excellence Fund, Future Energy Systems will conclude in November 2026. Until then, the energy adventures will continue.

Any researchers or graduate students interested in becoming involved in public outreach and education can contact Valerie Miller at vsmiller@ualberta.ca.

Photo credit: Supplied

"...FES has helped young people across Alberta learn more about the challenges faced by our environment, and the decisions that they must make in the years to come."

— Anne Naeth

Photo credit: Getty Images

Field skills in environmental, conservation and forest sciences

Simon Landhäusser

REN R 290 (Field Skills in Environmental, Conservation, and Forest Sciences), provides students with an invaluable opportunity to apply in the field the basic skills and techniques they were introduced to in the first two years of their environmental and conservation sciences or forestry programs. This course is delivered collaboratively by a team of academics and non-academic colleagues and staff across different faculties, who are volunteering their time to make it the best student experience possible. This unique approach to instructing allows students to not only gain exposure to a wide range of instructors' fields and subjects, but also to enhance their learning through peer exchange with other students from different programs and backgrounds.

This field course introduces students to basic and fundamental measurements, principles and concepts that are commonly used and applied in integrated resource management practices. We provide our students with hands-on experience like taking measurements that are regularly used in fundamental plant and wildlife ecology, and in evaluating and classifying forests, range and wetland habitats. Students learn how to quantify and describe variables such as soils, nutrients and water, vegetation and forest structure in the field. Overall, it is a unique and diverse experiential learning opportunity in a highly immersive field setting, exposing students to a large range of different forest sites common in Alberta and the larger boreal region of Canada.

Photo credit: Getty Images

Digitizing tree improvement programs

Barb Thomas

A digital transformation of Alberta's province-wide tree improvement (TI) programs began in April 2024, with $5 million-plus in funding for the Best Future Forests – Advanced Forest Genomics and Integrative Resource Management System (BFF- AFIRMS) project. With both industry and Government of Alberta support, all TI resources and phenotype data in Alberta will be digitized, providing a new, designed-for-Alberta, high through-put genotyping platform for both white spruce and lodgepole pine, and constructing a scalable, curated, relational database to warehouse and manage these resources. BFF-AFIRMS will be powered by a user-friendly experience-oriented front-end and an efficient computing back-end for large-scale optimization and predictive analyses. These analyses will include pedigree correction and reconstruction and genomic estimated breeding values (GEBV). It will allow for integration of the new climate-based seed transfer system to be considered when optimizing the selection of new parents for future seed orchards and integrate growth and yield projects from improved seed into forest-management decisions.

Benefits to the Alberta forestry community:

- Increased forest productivity and sustainability: BFF-AFIRMS aims to achieve a wide adoption of genomics technologies across the sector to increase forest resilience, productivity and sustainability. The use of GEBVs in TI and natural resource management will lead to higher selection accuracy of trees with greater yield, and improved resistance to pests, diseases and drought while increasing the resilience of one of Alberta's key natural resources to withstand climate change.

- Cost savings and improved efficiency: BFF-AFIRMS will deliver the computing infrastructure, analytics tools and trained personnel required to transform TI from a phenotype-driven to genetics/genomics-driven paradigm.
- Enhanced competitiveness: BFF-AFIRMS is aligned with the ministry business plan for agriculture and forestry on many fronts, particularly in support of rural development and value-added processing capacity. BFF-AFIRMS will enhance the capacity of governing institutions and the forestry sector on the use of genomics and computational technologies to engage in more effective and sustainable TI and genetic conservation practices.

Example diagram of functionality:

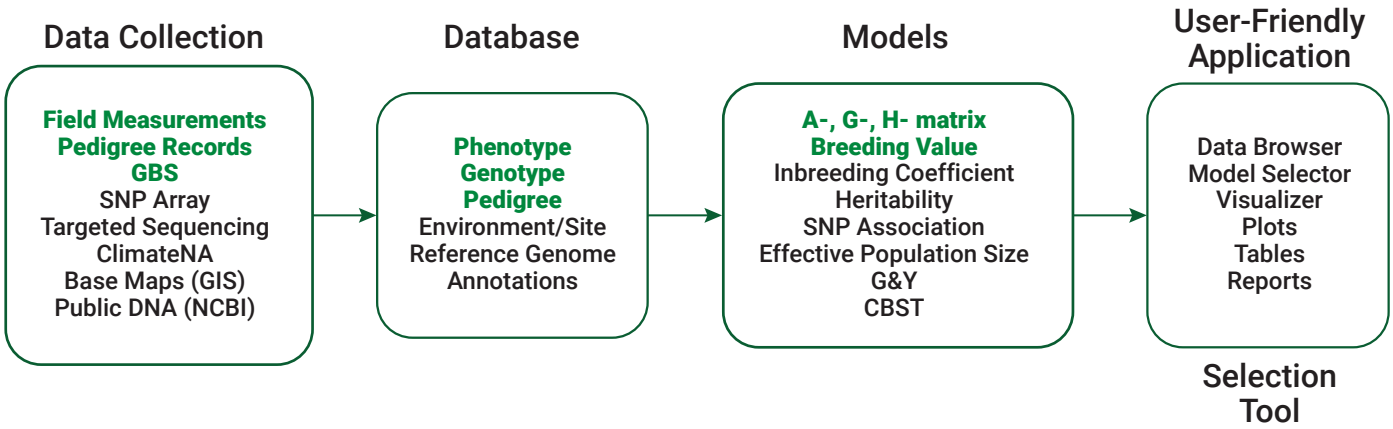


Photo credit: Barb Thomas

Photo: Ben Williamson, Foothills Research Institute

Cumulative watershed development pressures in the southwest Alberta Rockies

Uldis Silins

The **Southern Rockies Watershed Project** is one of Canada's longest-running instrumented watershed research platforms. Research has focused on documenting impacts of severe natural disturbances by wildfires and flooding — such as the 2003 Lost Creek and 2017 Kenow Mountain wildfires and the 2013 Alberta flood — along with historic and contemporary forest management practices on watershed health in this critical source water region.

In 2023, we expanded our focus to include new research on cumulative watershed impacts from historic and growing development pressures in the region. The Crowsnest River sub-basin is an exemplar of cumulative development pressures from historic and current forestry operations, coal mining in the headwaters, expanding municipal development in the middle portions of the basin and agricultural development lower down in the basin, where assessing the impacts of these pressures represents a daunting challenge for watershed managers. The research is testing new approaches for characterizing these complex interacting impacts with the aim to improve watershed management approaches to better mitigate watershed impacts from diverse development pressures.

In September 2025, research staff were joined by provincial and federal watershed regulators, forest managers, watershed councils and municipal planners for a **field workshop** focused on discussing approaches to improve such assessments to more effectively manage cumulative watershed impacts.

This research is supported by fRI, FRIAA, Canfor, West Fraser, Weyerhaeuser, and Parks Canada.

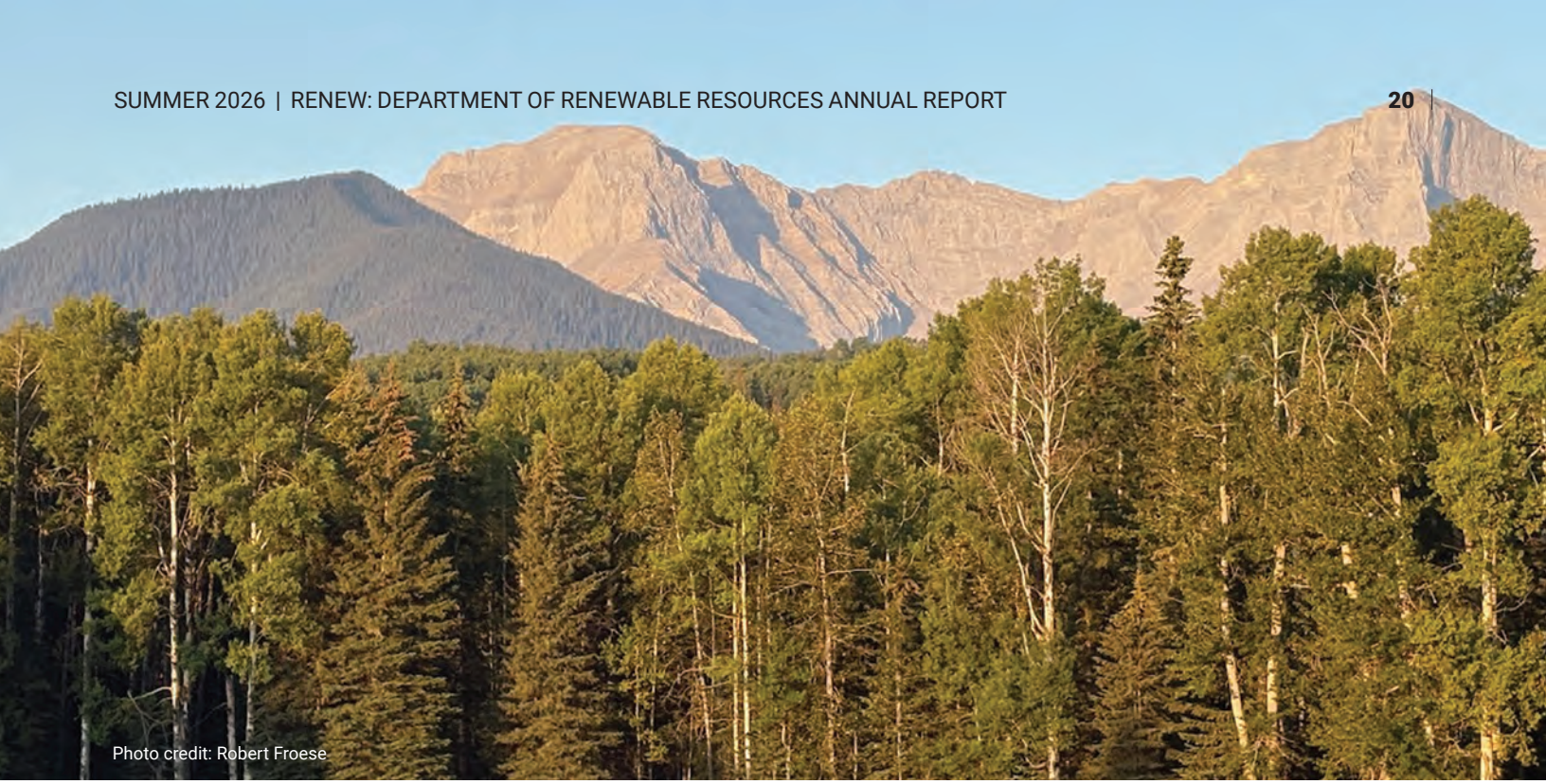


Photo credit: Robert Froese

Field school 2025: Learning in the foothills

Robert Froese

Each August, just before the fall term begins, forestry students in the Department of Renewable Resources head west for our annual forestry field school, a three-night, four-day immersion in applied forest science. Hosted at the Black Cat Guest Ranch, nestled in the foothills against the Rockies and surrounded by West Fraser's Hinton Forest Management Agreement (FMA), the field school offers something no campus setting can replicate: a learning environment where the forest itself becomes both classroom and instructor. The course is a required component of our accredited BSc and MF programs, ensuring that all graduates develop a strong foundation in practical, field-based forestry skills.

The week begins even before reaching the ranch. Day 1 is visiting one of West Fraser's seed orchards for a half-day session led by professor Barb Thomas and West Fraser's silviculture superintendent Jeff Morris. Students are introduced to the science and practice of orchards, progeny trials and seed production — an opportunity to see firsthand how Alberta's reforestation pipeline begins and why genetic quality is foundational to forest management.

Day 2 moves the group into the hills immediately west of the ranch. Leaving the trails behind, students spend the day navigating mixed terrain, covering eight to nine kilometres as they develop their "bush legs." While the exercise is invigorating, the day's real value lies in building teamwork, field awareness and the confidence needed for professional forestry work.

By Day 3, students turn their attention to regenerating pine and spruce–aspen mixed-wood stands. Here they examine coarse woody debris management, regeneration

performance and the practical considerations that influence stand establishment. After a lunch break on the banks of the Gregg River, the group visits the historic Gregg ’63 spacing experiment. In this living laboratory, students practice growth-and-yield measurements and explore long-term stand dynamics and the principles of ecosystem-based management.

Day 4 brings the focus squarely onto permanent sample plots (PSPs), the backbone of forest monitoring across Alberta. Students work through the practical challenges of relocating legacy plot corners, maintaining measurement consistency and understanding how high-quality long-term data supports sustainable forest management and policy.

The department is grateful for the collaboration and support of West Fraser, who generously share resource information that enriches the field exercises and strengthens the learning experience of the students.

Across the four days, the emphasis is on applied learning, collaboration and the development of practical field skills. Students leave with a deeper understanding of forest ecosystems, a clearer appreciation for the challenges of managing multiple values on the landscape and a strengthened sense of confidence in their ability to work effectively in the field.

“Across the four days, the emphasis is on applied learning, collaboration and the development of practical field skills.”

— Robert Froese

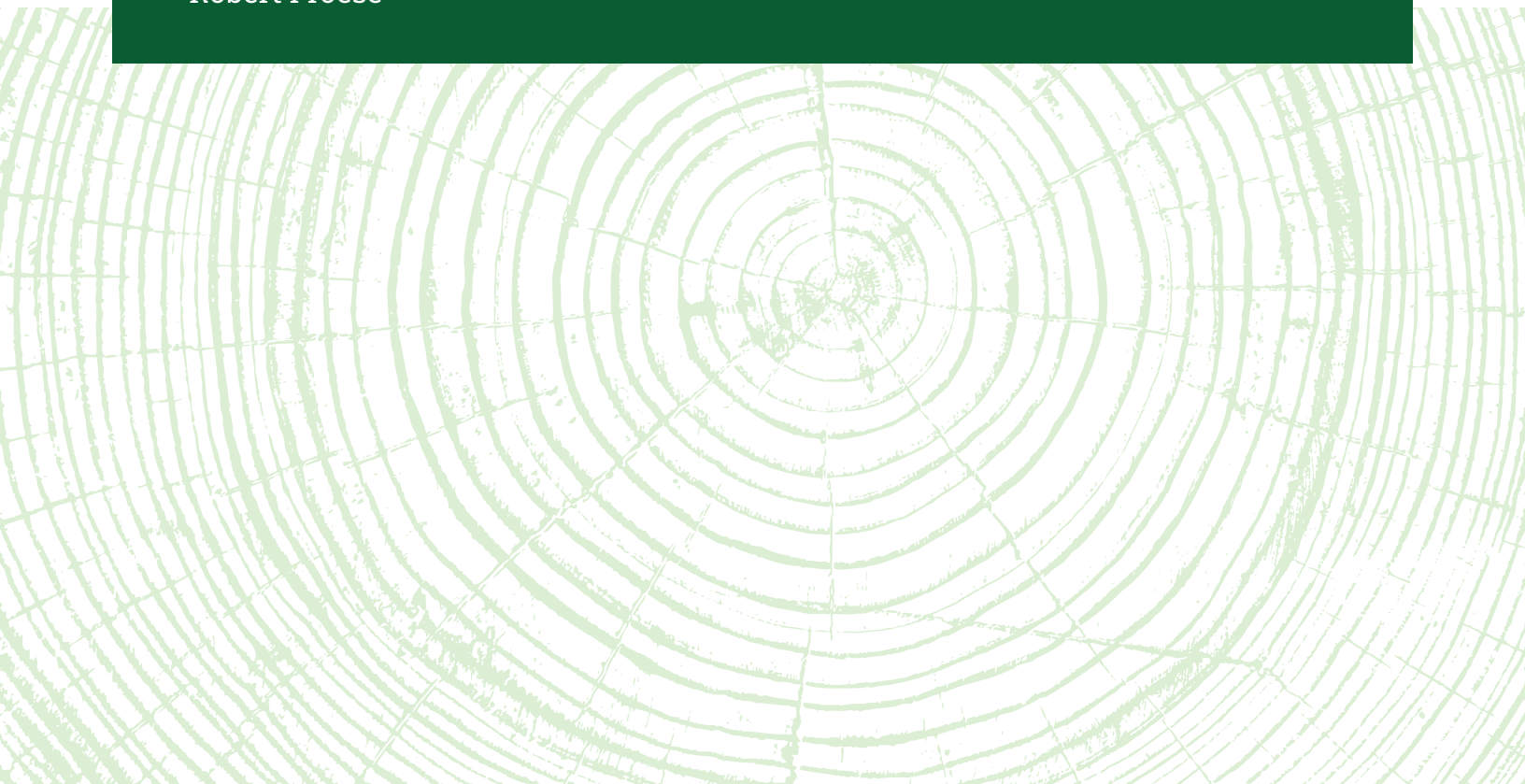


Photo credit: Izabela Martyniak

A new kind of classroom: RENR 401 heads to Mexico

Izabela Martyniak

During the February 2025 reading week, a group of U of A forestry students took part in the brand-new RENR 401: International Forestry Field School, a hands-on, eye-opening experience that brought classroom learning to life in the forests of Mexico.

Over eight days, students explored a range of forest ecosystems and got an up-close look at how forestry is practised in a totally different context, where community, industry and Indigenous leadership all play key roles. Mexico was the perfect destination thanks to its global reputation for sustainable forestry and innovative community-based management.

Before the trip, students joined an orientation session to get familiar with the key forestry issues in both Alberta and Mexico. Once on the ground, they met with local forest professionals, researchers and industry experts, visiting places that included the National Forestry Commission, a family-owned sawmill, a national park and university research labs.

One of the highlights was a stop at the University of Guadalajara, where students got to see how tree residues are being turned into bioplastics — an exciting example of how forestry can drive sustainability and innovation.

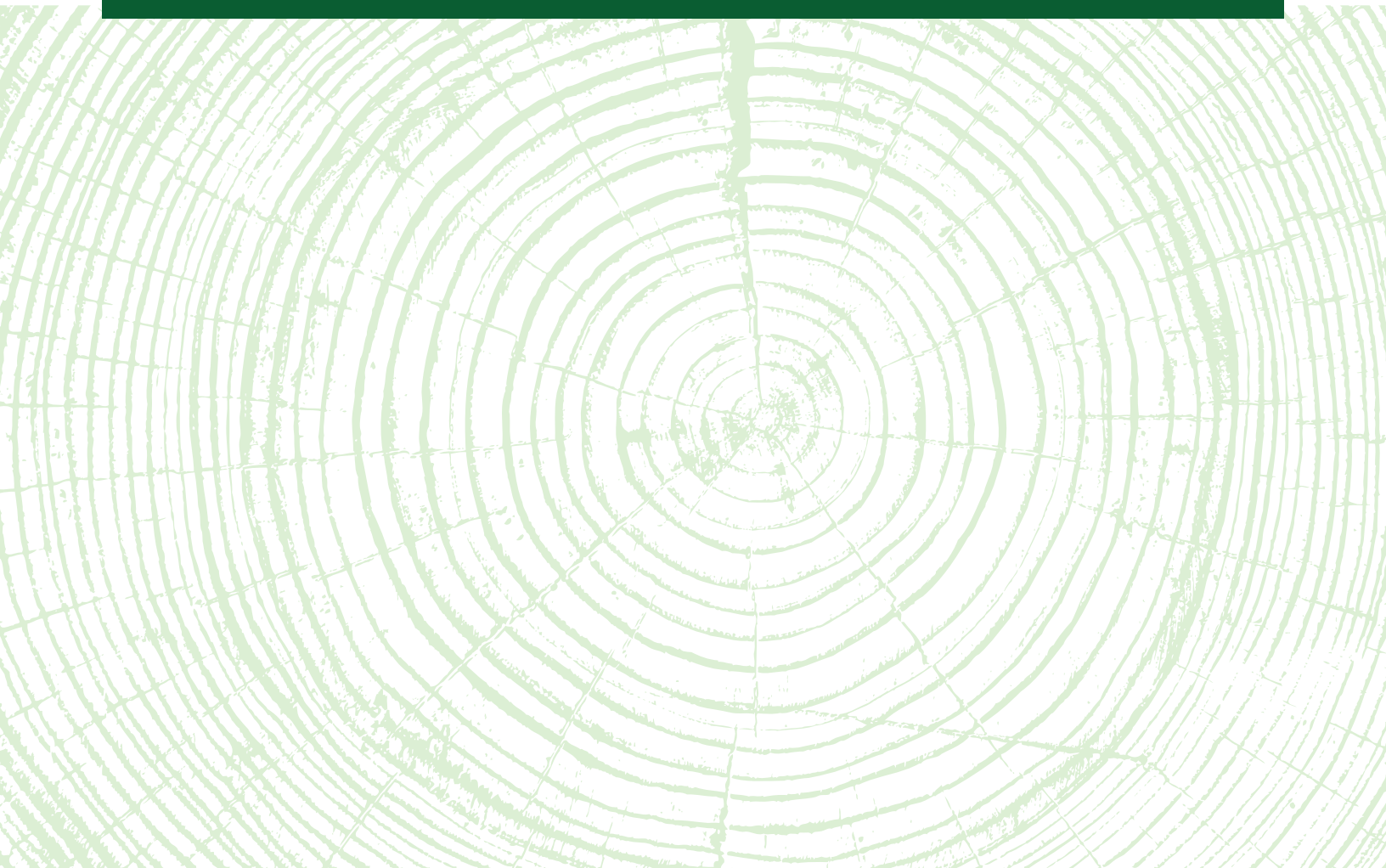
The trip wasn't just about observing, but also about thinking critically. Students reflected on what they saw, wrote a paper connecting their experiences to Alberta's forestry landscape, and presented their insights to classmates back home.

The course was led by Brad Pinno and Brian Roth, with Shelby Stenerson keeping everyone safe and organized and Izabela Martyniak, academic department manager, joining the group for the journey.

This enriching educational experience was made possible thanks to the generous support of the Scotiabank Mexico Corporate Social Responsibility Fund in partnership with the Faculty of Agricultural, Life & Environmental Sciences.

“The trip wasn’t just about observing, but also about thinking critically. Students reflected on what they saw, wrote a paper connecting their experiences to Alberta’s forestry landscape, and presented their insights to classmates back home. ”

— Izabela Martyniak



In the department community

Promotions

Charles Nock was recently promoted to associate professor. His research examines the impacts of human activities on forest ecosystems, including direct influences such as forest management, indirect effects through global change and the interactions between these drivers. Using both experimental and observational approaches, Nock integrates field sampling with near-canopy remote sensing to explore the relationships between forest biodiversity and ecosystem function.

Carol Frost was recently promoted to associate professor. She is an arthropod community ecologist with an applied focus on biodiversity conservation.
Her research examines how arthropod biodiversity and species interactions support ecosystem functions, and how human activities can disrupt these processes.
Frost's work spans three main areas: identifying low-cost strategies to enhance biodiversity conservation in industrial and urban landscapes; advancing basic ecological understanding through network-based approaches; and improving predictions of change in complex ecological communities.

David Olefeldt was recently promoted to full professor. His research focuses on the functions of catchments and wetlands — particularly peatlands — and how these systems are affected by disturbances, land use and climate change. His work addresses how small-scale hydrological and biogeochemical processes scale up to influence greenhouse gas emissions and water quality at larger scales. Combining extensive field research with modelling, remote sensing and geographic information system, Olefeldt emphasizes collaborative approaches, conducting research on First Nation traditional lands in northern Canada with local consultation, partnership in data collection and active communication of results to stakeholders.

Derek MacKenzie was recently promoted to full professor. His research focuses on soil biogeochemistry across forestry, oil and gas, and agricultural sectors, with a particular emphasis on wildfire-produced black carbon (biochar) and its role in humus formation and long-term carbon storage. Using methods from wet chemistry to solid-state nuclear magnetic resonance spectroscopy, he investigates soil processes and microbial ecology, including how fire frequency affects soil microbiota and ecosystem resilience. MacKenzie's work also extends to forest recovery, land reclamation and regenerative agriculture, evaluating management practices such as compost-biochar blends on soil health, productivity and microbial diversity. He is a leading advocate for accessible soil data, spearheading initiatives such as the **Database for Alberta Soil Health** and the national-scale **SAFE-HUB** to support research collaboration and informed decision-making.

Graduate student award highlights

The Department of Renewable Resources continues to provide training for excellent graduate students. In the last year, six new students were awarded the prestigious Canada Graduate Scholarship:

- Liam Easton, PhD, $40,000
- Lesa Giesbrecht, MSc, $27,000
- Alessia Marchesan, PhD
- Brennan Stanfield, MSc
- Shyloh van Delft, MSc
- Celina Waldron, MSc

These students join a group who have renewed their Canada Graduate Scholarships for this year, including:

- Abhijeet Pathy, PhD, Vanier, $50,000
- Jessica Chaves Cardoso, PhD, $40,000
- Danielle Pendlebury, PhD, $40,000

Our students have also won several interdepartmental awards.

- **Western Grains Research Foundation Graduate Scholarship**: Erica Prins, PhD, $27,500; and Seinfeld Pagdilao, MSc, $22,500
- **Delta Delta Delta Alumnae Fellowship**: Celina Waldron, $2,000

We are continually inspired by the dedication and excellence demonstrated by our graduate students. Their commitment to advancing knowledge in their field of research not only brings distinction to the department but also strengthens our research community. We deeply appreciate their hard work and congratulate them on these remarkable achievements.

New academic staff

Diane Haughland

Diane was previously an adjunct professor and designed and taught the department's lichenology course starting in 2017. As an undergraduate she migrated towards wildlife biology, studying snakes of all kinds in the field and lab with professor Karl Larsen at Thompson Rivers University (TRU) in Kamloops, B.C. She then completed a master's at the University of Victoria examining how juvenile squirrels explore their world, and how that influences where they settle and ultimately succeed.

Diane enjoyed working with fauna, but the flora was calling: She wanted to ask more questions with more taxa. While teaching on and off at TRU in diverse subjects including dendrology, human anatomy and physiology, conservation biology, evolution and terrestrial vertebrate ecology, she completed a PhD with professor Stan Boutin at the U of A, working on the newly established **Alberta Biodiversity Monitoring Institute** (ABMI).

During the final years of her PhD, Diane took a job as ABMI's lead lichenologist. Highlights of her career so far include 10 years at the Royal Alberta Museum, serving on the Committee on the Status of Endangered Wildlife in Canada lichens and bryophytes subcommittee, travelling for field work to almost every corner of the province, teaching hundreds of technicians how to "see" lichen diversity in the field, learning phylogenetic analyses with amazing collaborators at Duke University, contributing to ALES graduate students (co-supervising a few along the way), and most recently, describing new genera and species of fungi (lichenized and non-lichenized) to science.

Now, Diane is excited for this next chapter as a full-time contributor to the department that has been so welcoming over the years. She says the questions RenR faculty and students ask are not just intellectually exciting, they shape how we manage our environment. Diane hopes to help students make their degrees a successful, affirming, perhaps even transformative experience. When Diane's not teaching or staring through the microscope, she is hanging with her husband and pets, playing cello or occasionally taking long road trips to faraway places in Canada. You can find her in GSB 725.

Sheika Henry

Sheika has an interdisciplinary academic background, involving extensive application of geospatial tools (geographic information science, remote sensing) and stakeholder engagement methods in several areas of natural resources management. She obtained a PhD in geography (natural resources management is a sub-discipline) from the Federal University of Parana in Brazil, a master of science in geo-information science (GIS) and Earth observation (remote sensing) at the University of Twente in the Netherlands and a bachelor's in geography from the University of the West Indies.

Sheika conducted postdoctoral research in the Department of Civil Engineering at the University of Moncton, New Brunswick. She also worked outside of academia as a spatial data analyst at a development company and served as technical expert on projects that included engineers, natural resources management personnel, architects, urban planners, business strategic analysts and external stakeholders.

Sheika's interdisciplinary training allows her to teach courses across three departments (Renewable Resources, Engineering and Earth and Atmospheric Science), including:

- REN R 426/526 (Geographic Information Science Application in Renewable Resources)
- CIV E 789 (Geographic Information Science Application in Civil Engineering)
- REN R 201 (Geomatic Techniques in Natural Resources Management)
- EAS 201 (Earth Science 1)
- EAS 100 (Planet Earth)

Sheika has been invited by the federal government to provide expert guidance on technical documents developed for Natural Resources Canada and Public Safety Canada. Currently, she serves on supervisory committees for PhD students.

She is a member of numerous committees nationally and internationally, which includes being co-chair of the Equity, Diversity and Inclusion Committee in the Department of Renewable Resources, and editorial board member for the *Canadian Journal of Emergency Management*.

Shan Kothari

Shan joined the department in September 2024 as an assistant professor in tree ecophysiology, the study of how ecological patterns in forests emerge from the fundamental mechanisms of tree function such as photosynthesis, water transport and resource uptake. He came to the U of A after a PhD at University of Minnesota and two postdoctoral positions at Université de Montréal and Université du Québec à Montréal.

Much of his research concerns how trees interact and how forest structure emerges over time from these interactions. He is interested in how this knowledge can be used to improve ecosystem-based management, allowing the promotion of regeneration of desirable species and eventually recreate the complex structure of mature forests. In parallel, he is also working to advance methods to measure plant function at scale, in large part because traditional methods in physiological ecology can be very laborious. For this reason, he is increasingly using remote and proximal sensing techniques such as reflectance spectroscopy and light detection and ranging (LiDAR) to monitor forest health.

Having arrived in Alberta about a year ago, Shan is trying to learn as much as he can about the challenges in managing western boreal forests, and is exploring how fundamental ecological and physiological insights could bear on these challenges. One line of work he is keen to pursue concerns the role of drought in Canadian forests. As the climate changes, we expect drought to contribute to a rising frequency of mass mortality events. Shan hopes to explore whether the fundamental principles of water uptake, transport and loss in trees can be used to predict what kinds of forests are most vulnerable and manage them for drought resistance and resilience. Remote sensing will help map vulnerability over entire landscapes and identify areas where strategies such as thinning would be likely to improve outcomes.

At present, Shan is working on a project with colleagues at other institutions aiming to reduce tree mortality.

"I'm fortunate to be joining a department with so many brilliant, accomplished researchers, and I'm looking forward to developing research that connects fundamental ecological knowledge with practical challenges," he says.

Yihan Zhao

Yihan joined the Department of Renewable Resources in 2024 as an assistant lecturer, teaching both undergraduate and graduate courses in environmental sciences. Her teaching focuses on topics such as environmental history, environmental assessment sustainability and endangered species conservation. Yihan also co-teaches in the reclamation and forestry field schools.

Yihan's academic background is rooted in land reclamation and remediation. She completed both her MSc and PhD at the U of A under the supervision of M. Anne Naeth, and continued as a postdoctoral scholar in her lab for two years. Her research has explored innovative uses of materials derived from industrial and agricultural waste as amendments for reclaiming contaminated soils and treating water affected by industrial activity, and she continues to collaborate on projects that support energy transitions and climate-resilient reclamation practices.

Yihan strives to create inclusive, engaging and student-centred classrooms where learners can connect course content with real-world environmental challenges, encouraging curiosity, dialogue and collaborative learning. She also brings in Indigenous perspectives where possible and uses interactive tools and case-based learning to help students develop critical thinking skills and make meaningful connections between theory and practice.

Outside the classroom, Yihan serves on the department's Access, Community and Belonging (ACB) Committee. She helps with graduate admissions for the master of agriculture with a specialization in conservation and restoration of land, and the professional master's in ecology and ecosystem restoration, and advises a cohort of course-based master's students.

New support staff

Izabela Martyniak

As academic department manager for the Departments of Renewable Resources, Resource Economics and Environmental Sociology and Human Ecology, Izabela Martyniak plays a key role in keeping three busy Faculty of Agricultural, Life & Environmental Sciences' departments running smoothly. Working closely with each department chair, she provides both strategic and operational leadership – overseeing financial management, human resources and academic program administration.

Izabela leads a talented team that includes Christie Nohos (executive assistant), Sari De Guzman (academic department coordinator) and Shelby Stenerson (RENR departmental laboratory coordinator). Together, they ensure faculty, staff and students have the support they need to succeed.

With more than 13 years of experience in strategic communication and financial administration, Izabela brings a rare combination of analytical skill, organizational insight and people-focused leadership to her work. She holds a master of education in educational leadership from the University of Alberta – where her research explored the role of disruptive technologies in postsecondary education – as well as a bachelor of commerce in financial management.

This blend of education and experience gives Izabela a broad perspective on how to navigate complex systems, manage budgets effectively and develop innovative solutions that strengthen academic operations. Her steady leadership and strategic mindset continue to make her an invaluable part of the faculty's success.

Sarita “Sari” De Guzman

Though still relatively new to the Faculty of Agricultural, Life & Environmental Sciences, Sarita “Sari” De Guzman is not a stranger to the University of Alberta. By a stroke of luck during her job-hunting days, she was hired as a temp in September 2018 through the Interim Staffing Solutions Department — one month after immigrating to Canada. After fulfilling three assignments, she landed her first permanent gig at the Faculty of Education the following year.

She spent six years with the Faculty of Education as part of the graduate student services team for the master of library and information studies program before transferring to ALES in March 2025. At present, she is the academic department coordinator for the Departments of Human Ecology, Renewable Resources and Resource Economics and Environmental Sociology. Together with the office manager, Christie Nohos, and under the leadership of academic department manager Izabela Martyniak, she provides administrative support to the faculty and students of the three aforementioned departments.

Sarita obtained a bachelor of science in commerce with a major in international business economics and diplomacy in the Philippines 10-plus years ago – but she’d rather we not count the years! Although pursuing a graduate degree was never part of the plan, somewhere along the way a light bulb clicked in Sarita’s mind and made her realize she was nowhere near done with her learning journey. She donned her student cap again in September 2024, and now the majority of her time outside of her daily grind during the academic terms is spent working towards her master’s degree in educational psychology, with a specialization in measurement, evaluation and data science.

Shelby Stenerson

Shelby is the departmental lab coordinator here in Renewable Resources. She has been a part of the University of Alberta community for quite some time, first as a student completing her BSc in Plant Biology and later while earning her PhD in Freshwater Ecology. The main topic of her thesis was using algae as a bioindicator of water quality, evaluating the effects various land-use characteristics have on freshwater ecosystems.

It was her research experiences, paired with her passion for teaching, that drew Shelby to this position. Over the past two years she has truly enjoyed supporting the labs, working with students and contributing to our many programs within the department. Beyond her work life, Shelby like many of her colleagues, finds comfort in the outdoors. In her free time she enjoys horseback riding at her family's farm in Medicine Hat and getting out on the water to kayak. Shelby looks forward to continuing to work with everyone and supporting the wonderful teaching and learning experiences we have within the department.

Photo credit: René Belland

Forest Industry Lecture Series

Established in 1977, the Forest Industry Lecture Series (FILS) continues to be a highly anticipated learning and networking opportunity for students, faculty and industry practitioners alike.

Each event is hosted on the U of A North Campus and includes a presentation from a renowned expert, a student poster competition and a reception. Our 2025 lectures were as follows:

- **March 6:** The Role of Africa's Forests in Advancing the Global Climate Change Mitigation Agenda. Speaker Pamela Jagger, professor of environment and sustainability, School for Environment and Sustainability, University of Michigan
- **Nov. 6:** The Development and Future Use of Heuristics in Forest Planning. Speaker Kevin Boston, associate professor at the Center for Forest Business, University of Arkansas, Monticello

Don't miss the next event! FILS are hosted every November and March.

CATCH UP ON THESE PRESENTATIONS AND MORE!

Did you know recordings of past FILS presentations are available online? Visit **uab.ca/fils** for links to the videos on YouTube.

REN R by the numbers

Undergraduate Students:

511

Program

- BSc in Forestry: 86
- BSc in Environmental & Conservation Sciences: 392
- BSc in Forest Business Management: 7
- BA in Environmental Studies: 26

Origin

- Bangladesh: 1
- Canada: 476
- China: 14
- Colombia: 2
- Ecuador: 1
- France: 1
- Ghana: 1
- Hong Kong: 2
- Italy: 1
- Kyrgyzstan: 1
- Mexico: 2
- Netherlands: 1
- Nigeria: 1
- Palestinian Territory, Occupied: 1
- Philippines: 1
- South Sudan: 1
- Sri Lanka: 1
- United States: 3

Graduate students:

206

Program

- Master of Agriculture: 8
- Master of Forestry: 67
- Master of Science: 60
- Doctor of Philosophy: 71

Origin

- Azerbaijan: 1
- Bangladesh: 4
- Brazil: 4
- Canada: 110
- China: 24
- Colombia: 1
- Germany: 1
- Ghana: 2
- Honduras: 1
- Hong Kong: 1
- India: 1
- Indonesia: 1
- Iran: 3
- Italy: 1
- Japan: 1
- Lebanon: 1
- Mexico: 2
- Nepal: 9
- New Zealand: 1
- Nigeria: 2
- Pakistan: 9
- Philippines: 6
- Sri Lanka: 1
- Sweden: 2
- Switzerland: 2
- Tunisia: 1
- Turkey: 1
- United Kingdom: 3
- United States: 10

Faculty and Staff Directory

Faculty

NOT PICTURED

GLEN ARMSTRONG
Associate Professor
Forest Ecology & Management

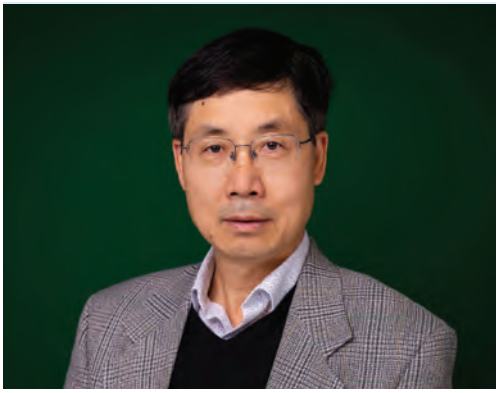
MARK POESCH
Associate Professor
Conservation Biology

FIONA SCHMIEGELOW
Professor
Wildlife & Landscape Ecology and
Director Northern ENCS Program

JOHN ACORN
Faculty Service Officer
Conservation Biology

RENÉ BELLAND
Faculty Service Officer
Conservation Biology

JEN BEVERLY
Associate Professor
Wildland Fire



SCOTT CHANG
Professor
Forest Ecology & Management

MILES DYCK
Professor
Sustainable Agriculture

NADIR ERBILGIN
Professor
Forest Entomology & Chemical Ecology
and **Department Chair**

ROBERT FROESE
Professor & Endowed Chair
Forest Growth & Yield

CAROL FROST
Associate Professor
Conservation Biology

ANDREAS HAMANN
Professor Conservation Biology
Director Academics & Communications

DIANE HAUGHLAND
Assistant Lecturer
Lichenology and Utilization of Wildlife Resources

FANGLIANG HE
Professor
Conservation Biology and
Tier 1 Canada Research Chair

SHEIKA HENRY
Assistant Lecturer
Environmental Science and Natural Resource Management

GUILLERMO HERNANDEZ-RAMIREZ
Professor
Sustainable Agriculture & Environmental Soil Science and **Director** Graduate Studies

JUSTINE KARST
Associate Professor
Forest Ecology and Mycorrhizal Ecology

SHAN KOTHARI
Assistant Professor
Plant Ecophysiology

SIMON M. LANDHÄUSSER
Professor
Forest Land Reclamation &
Applied Forest Ecology

M. DEREK MACKENZIE
Professor
Ecosystem Ecology

M. ANNE NAETH
Professor
Land Reclamation & Restoration Ecology

SCOTT NIELSEN
Professor
Conservation Biology

CHARLES A. NOCK
Associate Professor and NSERC Industrial Research Chair
Forest Ecology & Management

DAVID OLEFELDT
Professor
Catchment and Wetland Sciences
Director, Graduate Studies

BRAD PINNO
Associate Professor
Silviculture

SYLVIE A. QUIDEAU
Professor
Sustainable Agriculture, Environmental Soil Science

TARIQ SIDDIQUE
Professor
Soil Chemistry & Environmental Microbiology

WILLIAM SHOTYK
Professor
Geochemistry and **Bocock Chair in Agriculture & the Environment**

ULDIS SILINS
Professor
Forest Ecology & Management

BARB R. THOMAS
Professor
Forest Ecology & Management,
Forest/NSERC Industrial Research Chair

YIHAN ZHAO
Assistant Lecturer
Environmental Protection and Conservation

JANUSZ ZWIAZEK
Professor
Forest Ecology & Management

Administration Staff

IZABELA MARTYNIAK
Academic Department Manager

CHRISTIE NOHOS
Executive Assistant/Office Manager

SARITA "SARI" DE GUZMAN
Academic Department Coordinator

SHELBY STENERSON
Department Teaching Laboratory Coordinator

Leading with Purpose.

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