



# LOYOLA SUSTAINABILITY RESEARCH CENTRE

Annual Report

2020-2021

CONCORDIA

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## Message from the Co-Directors



Co-Directors Amy Poteete (outgoing) & James Grant (continuing)

Crises, they say, are revelatory. The pandemic certainly presented a multifaceted crisis that put all of us under pressure. As this report shows, the LSRC displayed not only grace under pressure, but also adaptability by maintaining popular activities in modified forms and resilience in embracing new opportunities. Most important of all, the turnout and enthusiasm for LSRC activities during the pandemic confirmed and reinforced the dynamism of our community.

The period covered by this report begins in June 2020, a few months after the university's closure forced us to cancel our eagerly anticipated conference on Sustainability and the Climate Crisis. Over the summer months, we developed a lunchtime webinar to allow students to share their work – particularly those who had been on the conference program and were expecting to graduate. This new lunchtime webinar series in July marked the beginning of collaboration with 4<sup>th</sup> Space that continued with our regular webinar series and our (postponed from 2020) Sustainability across Disciplines conference on Sustainability and the Climate Crisis in March.

Encouraged by the wonderfully supportive team at 4<sup>th</sup> Space, we experimented with a variety of formats to make our events interactive and interdisciplinary by design. Webinars, for example, brought together interdisciplinary panels of two or three researchers working on similar topics. By allowing participants to choose their own breakout sessions, we managed to enable the sorts of unstructured interactions that make our annual Ignite Session a favorite for many LSRC members.

Not only has live turnout for our events been as strong as ever, but the move online extended our reach considerably, as this report documents. We were very happy to welcome 2 new core members and 4 new student and postdoctoral associates to our Centre in 2020-2021. The dynamism of the LSRC community also comes through in the enthusiasm, thoughtful support, and constructive advice of our Administrative and Advisory Boards, inaugurated this year in line with our new governing documents. We are extremely grateful for all the contributions of our Board Members this year. And, of course, the LSRC's adaptability, resilience, and strength of community to a large extent reflects Rebecca Tittler's unflagging dedication. Thank you all!

We look forward to maintaining the partnership with 4<sup>th</sup> Space and these new strategies for fostering interdisciplinary exchange long after pandemic fades from view. After all, collaboration and interdisciplinary exchange in the name of sustainability represent the vital force of the LSRC community.

We look forward to seeing you all in person again, as we embark on another year full of exciting activities in 2021-2022.

-LSRC Co-Directors Amy Poteete (outgoing) and James Grant (continuing)

## **Additional Message from LSRC Co-Director James Grant and Coordinator Rebecca Tittler**

In addition to the above, this year marks the end of Amy Poteete's term as Co-Director of the LSRC. During her two-year term, Amy was particularly instrumental in developing the new governance structure, but also in welcoming new members, pushing forward university-level discussions about sustainability research, and transitioning seamlessly to the online reality imposed by the pandemic. The LSRC is stronger thanks to Amy's tireless efforts and leadership.

Amy Poteete will be replaced as Co-Director of the LSRC by Elizabeth (Liz) Miller, Professor in the Department of Communication Studies. With her contagious enthusiasm, creative ideas, and inspirational approach to sustainability, there is no doubt the LSRC will continue to grow in new and innovative ways under her co-directorship.

## **About the Loyola Sustainability Research Centre**

The Loyola Sustainability Research Centre (LSRC) is a network of researchers at Concordia and beyond working in the general field of sustainability. With the understanding that many of the most pressing sustainability issues of the day cannot be effectively addressed from a single disciplinary perspective in isolation, the mission of the LSRC is to promote a transdisciplinary approach to research and education about relationships among natural, human, and technological systems through basic and applied research, research creation, and art and design. Our understanding of environmental issues and their societal context emphasizes interactions between social and ecological systems from local to global scales, a problem-oriented choice of methods, and solution-oriented integration of results from different perspectives.

The LSRC brings faculty members, students, and post-doctoral associates from across the university together to explore the many facets of sustainability and resilience. It was founded in 2012 by Professor Peter Stoett and has since then grown to a membership of 92 researchers. The Centre supports research synthesis and knowledge transfer that are relevant for decision-making, policies and a transition toward a culture of sustainability.

The Loyola Sustainability Research Centre is housed in the Faculty of Arts and Science but, in accordance with its mission of promoting transdisciplinarity, includes members from all four faculties (see section on Members of the Centre below). Thus, it facilitates the collaboration of members on research projects across the University. With member expertise ranging from science and policy to design and communications, the interdisciplinarity of the Centre is its greatest strength.

The LSRC runs regular events, including a monthly seminar series, an annual Ignite session, and an annual Sustainability across Disciplines conference. These events foster the kind of cross-disciplinary discussion that is crucial to the development of transdisciplinary research projects. Rebecca Tittler, Research Coordinator of the Centre, also offers support for members in the conception of collaborative grant proposals.

## Members of the Loyola Sustainability Research Centre

There are four categories of membership in the Centre. Core members are university researchers or practitioner researchers/creators/artists who are deeply invested in the research activities and intellectual life at LSRC and for whom LSRC is their primary Concordia research centre association. Internal Associates are university researchers or practitioner researchers/creators/artists based at Concordia whose primary Concordia research centre association is not with the LSRC. This category also includes Concordia-based researchers who hold a part-time or short-term position, as well as retired former Core Members. External Associates are university researchers or practitioner researchers/creators/artists or community-based researchers and artists not based at Concordia whose activities enrich the community of practice of the LSRC. Student and Post-doctoral Associates are affiliated researchers working under the supervision of a Core Member or Internal Associate or whose affiliation is recommended by a Core Member or Internal Associate.

The current membership is as follows:

### Core members

1. Matthew Barker, Philosophy
2. Pascale Biron, Geography, Planning and Environment
3. Natasha Blanchet-Cohen, Applied Human Sciences
4. Salvadurai Dayanandan, Biology
5. Emma Despland, Biology
6. Dylan Fraser, Biology
7. Matthias Fritsch, Philosophy
8. James Grant, Biology
9. Jochen A. G. Jaeger, Geography, Planning and Environment
10. p.k. langshaw, Design and Computation Arts
11. Jean-Philippe Lessard, Biology
12. Shannon Lloyd, Management
13. Damon Matthews, Geography, Planning and Environment
14. Elizabeth Miller, Communication Studies
15. Katja Neves, Sociology and Anthropology
16. Raymond Paquin, Management
17. Eric Pedersen, Biology<sup>1</sup>
18. Pedro Peres-Neto, Biology
19. Amy Poteete, Political Science
20. Rajshree Prakash, Management
21. Leonard Sklar, Geography, Planning and Environment
22. Jeannine-Marie St-Jacques, Geography, Planning and Environment
23. Sam Rowan, Political Science
24. Rebecca Tittler, Loyola College for Diversity and Sustainability

25. Craig Townsend, Geography, Planning and Environment<sup>1</sup>
26. Sarah Turner, Geography, Planning and Environment
27. Robert Weladji, Biology
28. Anya Zilberstein, History

### Internal associates

1. Bengi Akbulut, Geography, Planning and Environment
2. Anjali Awasthi, Concordia Institute for Information Systems Engineering
3. Michael Bossert, CERC Smart, Sustainable, and Resilient Communities and Cities
4. Joel Bothello, Management
5. William Bukowski, Psychology
6. Carmela Cucuzzella, Design and Computation Arts
7. Ricardo Dal Farra, Music
8. Amélie Daoust-Boisvert, Journalism
9. Effrosyni Diamantoudi, Economics
10. Jill Didur, English
11. Ursula Eicker, Building, Civil and Environmental Engineering/ CERC Smart, Sustainable, and Resilient Communities and Cities
12. Yves Gelinias, Chemistry and Biochemistry
13. Govind Gopakumar, Centre for Engineering in Society
14. Thibaud Henin, Political Science
15. Kregg Hetherington, Sociology and Anthropology

<sup>1</sup> New to the Centre this year.

16. Angela Kross, Geography, Planning and Environment
17. Simon Langlois-Bertrand, Political Science
18. Alex Matveev, Geography, Planning and Environment
19. Catherine Mulligan, Building, Civil, and Environmental Engineering
20. Monica Mulrennan, Geography, Planning and Environment
21. Ali Nazemi, Building, Civil, and Environmental Engineering
22. Ketra Schmitt, Centre for Engineering in Society
23. David Secko, Journalism
24. Stefania Strantz, Economics
25. Peter van Wycke, Communication Studies
26. Carly Ziter, Biology

### External associates

1. Eric Abitbol, Environment, Security & Conflict Transformation Practice Leader at Universalis (management consulting)
2. Anna-Liisa Aunio, Sociology, Dawson College
3. Piero Genovesi, Institute for Environmental Protection and Research (Italy)
4. Christopher Gore, Politics and Public Administration, Ryerson University
5. William Kennedy, Office of Accountability at US Overseas Private Investment Corporation
6. Sandy Lamalle, Earth System Governance Workgroup on Environment, Representation and Rights
7. Cristina Romanelli, the World Health Organization
8. Tonia Ruppenthal, Management, Business Administration and Economics, Fulda University of Applied Science (Germany)
9. Laura Shillington, Geography, John Abbott College
10. Peter Stoett, University of Ontario Institute of Technology
11. Owen Temby, Political Science and School of Earth, Environmental, and Marine Science, University of Texas Rio Grande

12. Scott Vaughan, China Council for International Cooperation on Environment and Development
13. Wouter Veening, Institute for Environmental Security (The Hague)

### Student and post-doctoral associates

1. Emma Bider, Sociology and Anthropology
2. Anders Bjorn, Management
3. Debdeep Chaterjee, Supply Chain and Business Technology
4. Jonathan Cole, Geography, Planning and Environment
5. Arun Dayanandan, Biology
6. Miguel Del Pino, Mechanical, Industrial, and Aerospace Engineering
7. Elahe Fakoor, Management
8. Clare Freeman-Cole, Geography, Planning and Environment
9. Mark Kwakye Frimpong, Political Science
10. Marie Gagné, Political Science<sup>2</sup>
11. Brian Gallagher, Biology
12. Julia Ginsburg, INDI program
13. Sherif Goubran, INDI program
14. Maida Hadziosmanovic, Geography, Planning and Environment
15. Kayleigh Hutt-Taylor, Biology
16. Emily Kroft, Biology
17. Zachary Masson, Geography, Planning and Environment
18. Rubens Lima-Moraes, Political Science<sup>2</sup>
19. Duane Noel, Geography, Planning and Environment
20. Claire O'Neill Sanger, Geography, Planning and Environment
21. Alexandre Pace, Geography, Planning and Environment
22. Kian Rahimi, Mechanical, Industrial and Aerospace Engineering
23. Keroles Riad, INDI program<sup>2</sup>
24. Faisal Shennib, INDI program<sup>2</sup>
25. Serena Sinno, Biology
26. Brogan Stewart, Geography, Planning and Environment
27. Andrée Tremblay, Communication Studies
28. Zeynab Yousefzadeh, Mechanical, Industrial and Aerospace Engineering

<sup>2</sup> New to the Centre this year.

## Recent Developments

### LSRC convenes new Administrative and Advisory Boards

The LSRC is thrilled to be working actively with a new Administrative Board and a new Advisory Board this year. Convened as specified in the governance structure passed last year, the role of the Administrative Board is to oversee strategic direction and administration, while that of the Advisory Board is to provide general guidance and advice on operations and events and to facilitate information exchange. Both boards met for the first time in the fall of 2020. In addition to the Co-Directors, the Administrative Board is made up of current core members: Jochen Jaeger (Geography), Shannon Lloyd (Management), Elizabeth Miller (Communication Studies), Katja Neves (Sociology and Anthropology), and Raymond Paquin (Management). The Advisory Board includes Jason Ens (Executive Director, Academic Policy, Planning, and Strategic Initiatives, Office of the Provost and Vice-President, Academic Affairs), Brian Gallagher (PhD Candidate, Biology), Patrick Leroux (English / Associate Dean of Research in the Faculty of Arts and Science), Rebecca Tittler (LSRC Research Administration Coordinator), and Manon Tremblay (Senior Director, Indigenous Directions, Office of the Provost and Vice-President, Academic Affairs). Both boards provided invaluable advice and support this year.

### LSRC members participate in discussions on moving the Sustainability Action Plan forward

With the launch of Concordia's Sustainability Action Plan in October of 2020, developed in part with the collaboration of LSRC members, more in-depth discussions about how to address the strategies proposed has begun. One of the proposed strategies is to develop a framework to extend and enhance interdisciplinary networking, collaboration, and research on sustainability. LSRC members have been deeply engaged in these discussions with various other Concordia community members and stakeholders. We will continue to work on this in the coming year.

### New partnership with Concordia's 4<sup>th</sup> space allows the LSRC to reach a wider community online

Although the pandemic has obviously been difficult for everyone in so many ways, one positive is our new partnership with Anna Waclawek and Doug Moffat at Concordia's 4<sup>th</sup> Space, which has allowed us to reach a greater audience through our events. Concordia's 4<sup>th</sup> space has as a mission to make Concordia-based research, teaching, and community initiatives widely accessible. As such, the 4<sup>th</sup> Space team supported almost all our events online this year, helping us to make them more engaging in the online format. With panel discussions and workshops, live-streaming, and recordings, this partnership has helped us reach hundreds of people this year. We look forward to continuing to develop this relationship moving forward!

## A Sampling of Projects Involving LSRC Members

### The role of data in smart waste management and circular economy systems at local scales

*Faisal Shennib, Ursula Eicker, Ketra Schmitt, and Nizar Bouguila*

This project examines how advances in data mining, big data, remote sensor technology, and machine learning algorithms can be applied to improving waste management and circular economy activities at local scales. A survey of current data applications for circular economy will be followed by practical research in living laboratory settings at district and city levels at institutions like Concordia University, public spaces in the city, or municipal waste management contexts. The waste problem requires going beyond an engineering perspective to understand issues of behavioral psychology, design, policy, and how technological, infrastructural, and educational initiatives can be limited or bolstered by these factors.

### Developing precautionary approach frameworks for managing changing productivity fisheries

*Eric Pedersen, Krista Baker, David Deslauriers, John-Philip Williams, and Valentin Lucet*

One of the primary goals of fisheries science is determining how to manage the amount of harvest to ensure that fisheries are sustainable, while still providing fish for producers to sell and people to eat. Keeping marine populations at sustainable levels while still allowing harvest is critical for the well-being of marine populations and for food and economic security for coastal communities. Fisheries science has focused on the principle of maximum sustainable yield (or MSY) as a target for managing healthy fisheries. However, the concept of MSY was developed for fisheries with constant productivity, where the only factor affecting the amount of fish an ecosystem can



produce that changes over time is human fishing effort. As human impacts and climate change are leading to increasingly rapid environmental shifts in the global oceans, this assumption of constant productivity is becoming increasingly untenable and we are seeing more and more cases of rapid changes in fisheries productivity. This means that the methods we have used to manage fisheries and set quotas are becoming less reliable for ensuring sustainable fisheries. This project involves simulations and analysis of long-term shrimp fisheries data to determine how to alter management and decision-making processes to protect vulnerable fisheries, and how to create adaptive management strategies to protect arctic shrimp populations from overfishing.

### How can changing freeze and thaw cycles affect agriculture, infrastructure, and society of Canada's north?

*Ali Nazemi, Christian Genest, Lori Bradford, Biao Li, Michelle Nokken, and Elmira Hassanzadeh*

One key land feature in Canada is seasonal cycles of freeze and thaw (FT) acting as a controller for a range of environmental processes, from vegetation growth to movement of water and solute in soil to land-atmospheric interactions. Considering the human utilization of land, FT cycles matter to agriculture, but they also determine soil stability and expected lifespan of the built environment, and therefore matter to human activities such as infrastructure construction and operation, mining, and transportation. Due to these impacts, FT has been a key driver shaping culture in northern Indigenous communities. Having said that, climate change has generated unprecedented changes in FT cycles across Canada, where the rate of warming is twice the global average. Existing scientific methodologies, however, are not able to fully reproduce, predict and project the evolving links between hydroclimate variables, landscape characteristics, and FT conditions. In addition, a holistic understanding of the impacts of changing FT conditions on human activities and northern communities is currently lacking. Building improved tools for projecting FT and coming up with new

assessments that can form a woven understanding of the impacts of changing FT on socio-economic activities are two essential steps to prepare Canada for challenges and opportunities of the thawing north. The aim of this study is to explore recent and future changes in Canada's FT cycles and their impact on agriculture, infrastructure, and society above 50°N. Using various sources of data support and formal statistical dependence models, we provide – for the first time – a synoptic, pan Nordic projection of future changes in the FT cycles throughout the 21<sup>st</sup> century across Canada. Through community engagements, we verify our findings with traditional ecological knowledge. By merging computer models and laboratory setups, we present an integrated assessment of the impacts of changing FT on agriculture, soil, and infrastructure. We also explore what the compounding pressures of changing natural and socioeconomic landscapes mean to the people of north. By merging quantitative Western knowledge with traditional Indigenous knowledge and co-creating new forms of inquiries with members of Indigenous communities, we present new insights for future development in the thawing north that not only support economic growth, but also value and preserve the precious environmental and cultural landscapes above 50°N.

### Stream Restoration for Fish Habitat

*Kyleisha Foote, Pascale Biron, and James Grant*



Human modification of watersheds has led to the homogenization of stream ecosystems and the decrease in abundance of important salmon and trout populations across the northern hemisphere. Attempts to restore these streams and populations often fail because of a lack of collaboration between hydrogeomorphologists and biologists. Using a meta-analysis, this research has shown that instream restoration projects at

small spatial scales are effective at improving salmonid abundance, but only for the short term<sup>3</sup>. Taking a broader watershed-scale approach, Kyleisha and colleagues are currently testing whether indices developed to assess the hydrogeomorphic integrity of stream ecosystems can also predict salmonid abundance in streams in Canada and New Zealand. This project also involves compiling a world-wide database of salmonid abundance in streams across the world. The goal is to build models to predict salmonid abundance in streams and use these to guide stream restoration efforts.

### From the Paris Agreement to corporate climate commitments: Evaluation of seven methods for setting “science-based” emission targets

*Anders Bjørn, Shannon Lloyd, and Damon Matthews*

While large companies routinely announce greenhouse gas emissions targets, until recently, few had derived targets based on global climate stabilization goals. This changed in 2015 with the creation of the Science Based Targets (SBT) initiative, which provides guidelines for setting emission targets in line with the temperature goal of the Paris Agreement. To date, SBTs have been set by more than 500 companies, accounting for ~2% of global emissions. However, methods for setting such targets are not presented in a comparable way in target-setting guidelines and concerns that some methods may lead to overshoot of the temperature goal have not been investigated. In this study, researchers systematically characterize and compare all seven broadly applicable target-setting methods and quantify the balance between collective corporate SBTs and global allowable emissions for individual methods and different method mixes. To do this, they use a simplified global production scenario composed of eight archetypical companies to evaluate target-setting methods across a range of company characteristics and global emission scenarios. The methods vary greatly with respect to

<sup>3</sup> Foote, K. J., Biron, P. M., & Grant, J. W. (2020). *Canadian Journal of Fisheries and Aquatic Sciences*, 77(9), 1574-1591.

emission allocation principles, required company variables, and global scenarios related to future allowable emissions and gross domestic product. Some methods treat companies largely the same, while others differentiate between company types based on geography, economic sector, projected growth rate or baseline emission intensity. The application of individual target-setting methods and different mixes of methods tend to result in an imbalance between time-integrated aggregated SBTs and global allowable emissions. In many cases, the sign and size of this imbalance is sensitive to the shape of the global emission pathway and the distribution of variables between the company archetypes. Bjorn and colleagues recommend (1) transparency from method developers about allocation principles involved, (2) disclosure from companies about methods used to derive SBTs and (3) consideration of emission imbalance by the SBT initiative to improve recommendations.

### Beyond climate scenarios: the future of biodiversity as a function of cumulative carbon emissions

*Pedro Peres-Neto and Damon Matthews*

Biodiversity is declining around the world. Extinction rates have risen far enough above historical norms that scientists have defined a new era of global mass extinction. A critical action urgently needed to prevent further biodiversity loss entails developing accurate models to forecast how biodiversity will continue to change in the future. These models are critical to guide effective conservation and management strategies, prioritize the most threatened species and ecosystems, estimate potential changes in biodiversity-associated ecosystem services, guide sustainable practices, enable smart policies, and inform biodiversity assessments. Currently, biodiverse-climate change models are based on climatic predictors estimated from global circulation models (GCMs) under different socioeconomic scenarios of how landscape usage (e.g., urbanization, agriculture, transportation) and greenhouse gas emissions should change as a function of global demographics and industrial activities. However, the high level of uncertainty

introduced by the inclusion of variables influenced by human decisions, such as changes in industry and demography, can introduce large uncertainties while estimating future climate conditions. These uncertainties are then transferred to forecasting biodiversity models. This is because there is no simple way to adjust emission levels that generated future climate predictions once a given scenario has been used to generate a biodiversity forecasting model. We are proposing a new generation of biodiversity models that allow forecasting climate change impacts on biodiversity by directly relating carbon emissions to changes in climatic variables. These forecasting models remain then valid across a wide range of potential future scenarios.

### Sharing Montreal with the future: How concerned are Montrealers today about the implications of their residential choices on future generations?

*Mirya Reid, Jochen Jaeger, Matthias Fritsch, Craig Townsend, William Bukowski, and Ryan Persram*

Urban sprawl contributes to climate change and has harmful effects on public health. However, studies about sustainable housing alternatives often exclude considerations of future generations. Using a stated-preference survey, this study examines Montrealers' perceptions of sprawl alongside their residential preferences and how these preferences change when future generations are explicitly considered. Results so far indicate that respondents are largely unaware of urban sprawl and its impacts on the environment and future generations. Respondents who were more familiar with urban sprawl preferred higher density housing options more frequently than those with less prior knowledge. Respondents who reported being more worried about the effects urban sprawl might have on their future and on future generations were also more likely to assign higher levels of importance to concerns about urban sprawl and how people in the future will have to deal with it. These findings reveal crucial insights about the relationship between perceptions of urban sprawl and personal lifestyle preferences for more sustainable housing options.

## Events

Every year, the LSRC runs a series of free, public events designed to foster sustainability research discussion across disciplines. Despite the pandemic, this year was no exception. The only difference was that all events were run online this year for the first time, and almost all then had posted recordings. This allowed us to reach a broader audience than usual while still providing the same quality of presentation and discussion. This year's events included a summer lunch-time webinar series as well as our regular monthly seminar (now webinar) series, Ignite session, and conference (now a series of online discussions).

### Summer lunch-time Sustainability across Disciplines webinar series

This series featured the work of graduate students who had been scheduled to present at the Sustainability and the Climate Crisis conference in March of 2020. The conference had to be cancelled due to the pandemic. Most participants presented as part of the March 2021 series of discussions by the same title, but we organized this lunch-time series so that graduate student participants who expected to be moving on could present their work before the next academic year. All webinars were free and open to the public and took place over the lunch hour in collaboration with Concordia's 4<sup>th</sup> Space. As of May 21, 2021, each webinar had garnered an average of over 230 views on Zoom (during the scheduled timeslot), Facebook (live or afterwards), and YouTube (after the fact) as of May 21, 2021. The series included the following:

July 14: Zeynab Yousefzadeh: [Using life cycle assessment to identify opportunities for improving the environmental performance in emerging technologies](#) (13 views on Zoom + 24 views on YouTube + 346 views on Facebook = 383 views)

July 15: Cedric Yargeau: [Privately owned public space: An assessment of Montreal legislation and projects](#) (13 views on Zoom + 9 views on YouTube + 211 views on Facebook = 233 views)

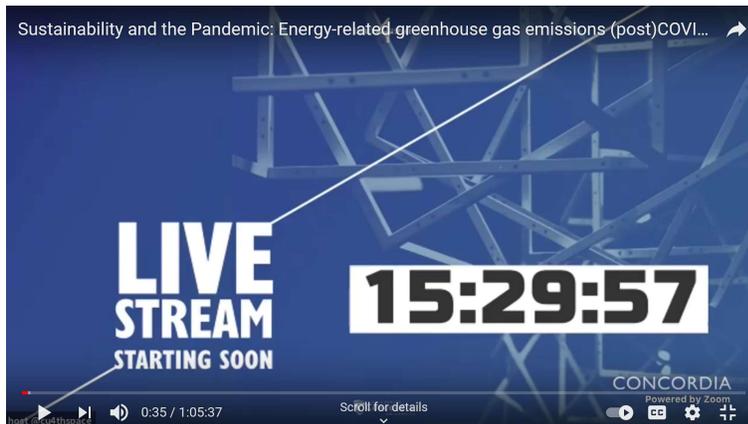
July 16: Isaac Eckert: [Invasive species, climate change and biodiversity: A focus on Canadian pines in Argentina](#) (15 views on Zoom + 13 views on YouTube + 109 views on Facebook = 137 views)

July 21: Mehrdokht Pourali: [Measuring and monitoring urban sprawl in Canada from 1991 to 2011](#) (12 views on Zoom + 14 views on YouTube + **192 views** on Facebook = 218 views)

July 22: Steffy Velosa and Jochen Jaeger: [Reducing wildlife mortality on roads and restoring ecological connectivity: The use of roadkill surveys, fences, and crossing structures](#) (42 views on Zoom + 99 view on YouTube + 116 on Facebook = 257 views)

July 23: Charla Patterson: [Assessing the inclusion of ecological connectivity in EIA in Canada](#) (24 views on Zoom + 21 views on YouTube + **119 views** on Facebook = 172 views)

## Regular webinar series



For several years, we have been collaborating with the Loyola College for Diversity and Sustainability to host a monthly seminar series during the fall and winter semesters. Due to the pandemic, we ran this series in a webinar format this year in collaboration with Concordia's 4<sup>th</sup> Space. In the interest of providing a more engaging format for the online environment, webinars were set up as panel discussions, with at least two speakers or a speaker and two

discussants per session. This year, we decided to focus on the pandemic for the fall semester, pairing Concordia researchers addressing similar issues from different disciplinary perspectives. As above, the series was free and open to the public, and was well-attended, with an average of almost 190 people viewing each webinar either on Zoom during the scheduled event, on Facebook (live and recorded), or on YouTube (recorded). The series included the following:

October 9: Emma Despland and Elizabeth Miller: [Sustainability and the Pandemic: Environmental degradation and the pandemic](#) (46 views on Zoom + 57 views on YouTube + 240 views on Facebook = 343)

November 13: Katja Neves and Andrée Tremblay (Concordia U.): [Sustainability and the Pandemic: Exploring the \(post\)pandemic garden](#) (32 views on Zoom + 43 views on YouTube + 102 views on Facebook = 177 views)

December 11: Simon Langlois-Bertrand and Shadnoush Pashaei Farahani: [Sustainability and the Pandemic: Energy-related greenhouse gas emissions \(post\)COVID19](#) (22 views on Zoom + 59 views on YouTube + 109 views on Facebook = 190 views)

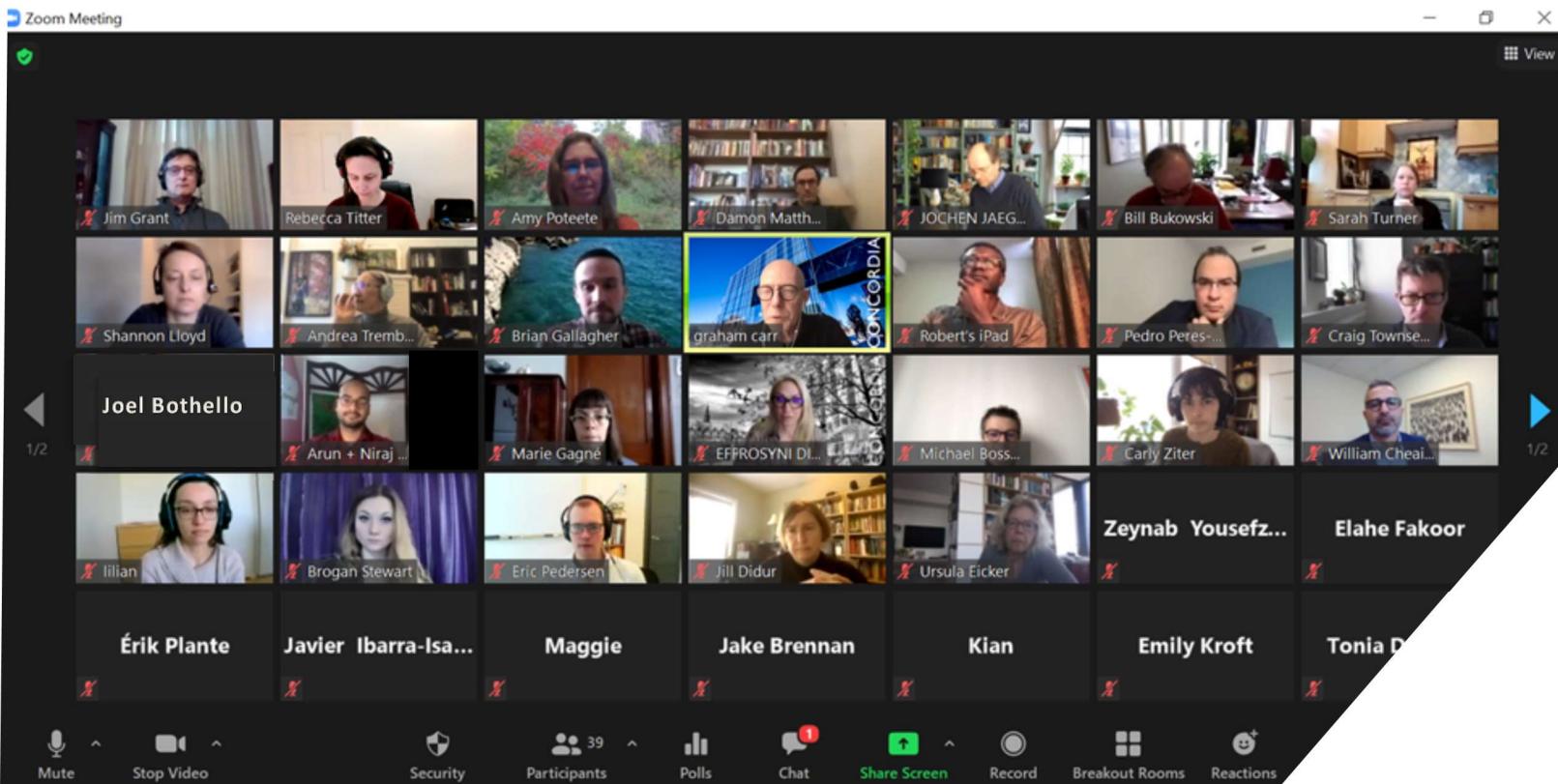
April 9: Adeela Arshad-Ayaz, Anthony Garoufalidis-Auger Peter Graham: [Solve Climate by 2030: Building a green Montreal together](#) (40 attendees on Zoom + 48 views on YouTube = 84 views; not available on Facebook)

May 14: Mark Vellend (U. Sherbrooke) with Matthew Barker and Carly Ziter (Concordia U.): [Do the values of biodiversity scientists bias biodiversity science?](#) (52 attendees on Zoom + 9 views on YouTube + 77 views on Facebook = 147 views)

## Fifth annual Ignite session

In February of every year, the LSRC hosts its annual Igniting Sustainability Research Session. Although past Ignite Sessions have been open to the public, their main goal has always been to foster discussion and collaboration among members of the LSRC. Considering the enthusiastic audience participation in our other online events, we limited participation in this year's Ignite session to LSRC members. The event brought together 40 people for a fascinating series of discussions.

The event is organized so as to maximize conversation among and participation of LSRC members. The two hours is split into 20-minute blocks of presentations interspersed with 20-minute blocks of discussion. This year, we ran this with break-out rooms on Zoom. The presenters were as follows: Graham Carr (University President, History), Shannon Lloyd (Management), Damon Mathews (Geography, Planning and Environment), Carly Ziter (Biology), Effrosyni Diamantoudi (Economics), William Bukowski (Psychology), Michael Bossert (Building, Civil, and Environmental Engineering), Marie Gagné (Political Science), Brogan Stewart (Geography, Planning and Environment), Liz Miller (Communication Studies), Craig Townsend (Geography, Planning and Environment), Joel Bothello (Management), Jochen Jaeger (Geography, Planning and Environment), Brian Gallagher (Biology), and Amy Poteete (Political Science). As usual, the event led to many interesting conversations.



# Sustainability and the Climate Crisis

A week of discussion

March 15-19, 2021

Concordia University

## Annual Sustainability Across Disciplines discussion: Sustainability and the Climate Crisis

With the exception of 2020, since 2017, the Loyola Sustainability Research Centre has been co-hosting a Sustainability Across Disciplines Conference in collaboration with the Loyola College for Diversity and Sustainability and with the support of the Office of the Vice-President, Research and Graduate Studies; the Faculty of Arts and Science; the Canada Excellence Research Chair in Smart, Sustainable and Resilient Communities and Cities; the John Molson School of Business; and the Departments of Biology; Communication Studies; Economics; Geography, Planning and Environment; Management; and Political Science at Concordia University. The goal of this conference is to foster discussion and collaboration across disciplines, as well as showcasing the inspirational sustainability research going on at Concordia.

With all events online this year due to the pandemic, the LSRC chose to present a series of discussions on Zoom with the collaboration of Concordia's 4<sup>th</sup> space rather than an online conference *per se*. In this format, we hosted 19 sessions over the week of March 15, including 2 workshops, 14 panel discussion featuring Concordia researchers, two external guest speakers, and a Careers panel. A total of 65 people presented throughout, and a record 425 people attended the synchronous sessions on Zoom, not to mention hundreds more viewing the session recordings on Facebook and YouTube. Highlights included the presentations of Drs Yvette Perfecto (Biology, University of Michigan) and Angela Carter (Political Science, University of Waterloo), as well as Dr. Damon Matthews (Geography, Planning and Environment,

Concordia University); a workshop on Life Cycle Assessment led by Dr. Shannon Lloyd (Management, Concordia University); and a demonstration of the Climate Geopardy educational outreach game developed by Concordia's Climate Emergency Committee and facilitate by Alex Pace and Brogan Stewart (Geography, Planning and Environment, Concordia University). All in all, this exceptionally positive experience engaged a great number of researchers, students, and external community members interested in sustainability research.

As usual, we also ran our student presentation competition this year. The winners in the various categories were as follows:

*Best 3-minute Presentation:*

1st place: Vincenzo Corelli: [Integrating climate change into marine protected areas' management plans](#)

2nd place: Alexandria Farrell-Coulas: [Identifying challenges for climate resilient health systems among small island developing states](#)

*Best Undergraduate Student Presentation:*

1st place: Jacques Simon-Mayer: [Mapping and monitoring surface water chlorophyll using satellite imagery: Investigation of industrial impacts on the Great Lakes' water quality](#)

2nd place: Mirya Reid: [Sharing Montreal with the future: How concerned are Montrealers today about the implications of their residential choices on future generations?](#)

*Best Masters Student Presentation:*

1st place: Danielle Douez: [Climate Justice: What can individuals do for the future?](#)

2nd place: Clara Freeman-Cole: [How effective are protected areas in Canada at limiting landscape fragmentation and promoting connectivity?](#)

*Best PhD Presentation:*

1st place: Brogan Stewart: [Climate change impacts on nonhuman primate species based on cumulative CO2 emissions](#)

2nd place: Debdeep Chaterjee: [Life Cycle Assessment: Why aren't more companies using it?](#)

Outstanding work was also presented by dozens of other students throughout the week. A big thank you to all those who participated and also to our dedicated judges: James Grant, Jochen Jaeger, Katja Neves, and Rebecca Tittler.

All in all, this year, we learned a lot about all the exciting sustainability research taking place at Concordia, but also about the potential power of the online format as well as the value of in-person meetings; we plan to apply this new-found knowledge and expertise to our events moving forward.

## Budget

Although the LSRC does not have an operating budget, the Faculty of Arts and Science supports Rebecca Tittler's position, approximately 40% of which is dedicated to the LSRC.

In addition, in the summer and fall of 2019, the LSRC raised \$12,991 in funds from the Faculty of Arts and Science and various departments in the Faculty, as well as the Department of Management in the John Molson School of Business and the Canada Excellence Research Chair in Smart, Sustainable, and Resilient Communities and Cities (housed in the Department of Building, Civil, and Environmental Engineering in the Gina Cody School of Engineering and Computer Science) to support the Sustainability and the Climate Crisis conference, which was scheduled for March 2020 (see above). LSRC Co-Director Amy Poteete used these as matching funds to apply for an ARRE (Aid to Research Related Events) grant in the fall of 2019 and was awarded \$5000 for the conference. While the contributions from the Faculty and Departments were reabsorbed at the end of the 2019-2020 fiscal year when the conference was cancelled, the Office of Research provided an extension to allow LSRC to use the grant awarded in 2019 towards a conference with the same theme in 2021. Since the conference was held online as a week-long series of webinar discussions, there were neither travel expenses for external speakers nor expenditures for refreshments. The grant covered student prizes and funds to hire an undergraduate student to help with the planning and advertising, leaving a surplus to be returned to the Office of Research (Table 1).

Table 1. Budget from Sustainability and the Climate Crisis week of discussions

<i>Item</i>	<i>Unit cost</i>	<i>Total cost</i>
Student prizes	\$108.36 (including taxes) × 4 (for each 1 <sup>st</sup> prize) + \$54.18 × 4 (for each 2 <sup>nd</sup> prize)	-\$650.13
Undergraduate student assistant	30 hours at \$16.67 / hour, including vacation pay, plus 9.9% overhead	-\$550.00
<i>Total expenses</i>		<i>-\$1200.13</i>
<i>Total funding allocated by the Office of Research</i>		<i>\$5000.00</i>
<b><i>Total surplus (to be returned to the Office of Research)</i></b>		<b><i>\$3799.87</i></b>

## Looking Forward

Despite the uncertainty of the current pandemic, we anticipate an exciting new academic year at the LSRC! Once Amy Poteete finishes her term as co-Director on May 31st, Elizabeth Miller will join James Grant as Co-Director. We will spend the summer putting together the seminar program for next year, scheduling the Ignite session, and beginning to plan our annual conference, considering whether these events should be held in person, online, or both. In addition, we will continue to build and support our network and its emerging research collaborations. We will also continue to participate actively in discussions of how best to foster a culture of sustainability in research at Concordia and beyond.

## **Appendix I: Schedule of the Sustainability and the Climate Crisis week of discussion**

## Monday, March 15, 2021

Time	Event
10:30-12:00	<a href="#">Current topics in sustainability science</a> , featuring Julia Bonaventura, Kai Bruce, Margo Burgess-Pollet, Emily Colins, Vincenzo Corelli, Tania Couture, Alexandria Farrell-Coulas, Yisa Ginath Yuh, Alexa Mantifel, Lana Mutassem, Rain Noakes, Nicholas Pfeiffer-Major, Yann Quash, Michael Jairus Rolheiser, Kayden Schwartz, Alessandra Szilagyi, Naomi Trott, Avery Tyrell, and Alice Yue
12:45-13:45	<a href="#">Insects: indicators and agents of global change?</a> featuring Emma Despland, Javier Ibara-Issasi, and Pamela Yataco
14:30-15:30	<a href="#">Implications of the remaining carbon budget for climate policies and emissions targets</a> , featuring Damon Matthews
16:15-17:15	<a href="#">Emissions targets and a challenge to capitalism?</a> featuring Anders Bjorn and Daniel Horen Greenford

## Tuesday, March 16th, 2021

Time	Event
10:00-11:30	<a href="#">Climate change and natural systems</a> , featuring Brian Gallagher, Jeannine-Marie St.-Jacques, Duane Noel, Alex Pace, and Brogan Stewart
12:00-13:00	<a href="#">Climate action at Concordia</a> , featuring Amr Addas, Dan Gauthier, and Damon Matthews
14:00-15:00	<a href="#">Sustainable research through open scholarship</a> , featuring Krista Byers-Heinlein and Pedro Peres-Neto
16:00-17:00	<a href="#">Next generation cities. Now.</a> featuring Ursula Eicker, Govind Gopakumar, Carmela Cucuzzella, Janis Timm-Bottos, and Erkan Yonder

## Wednesday, March 17th, 2021

Time	Event
10:00-11:00	<a href="#">The future of biodiversity on a changing planet</a> , featuring Pedro Peres-Neto and Lilian Sales
11:45-12:30	<a href="#">Decarbonizing and carbon catching for planet positive futures</a> , featuring Satoshi Ikeda
13:15-14:15	<a href="#">Sustainability on land and in the water</a> , featuring Clara Freeman-Cole, Sahar Alinezhad, and Jacques Simon-Mayer
15:00-16:00	<a href="#">Keeping fossil fuels in the ground: The future of climate policy?</a> featuring Angela Carter

## Thursday, March 18th, 2021

Time	Event
10:00-11:15	<a href="#">Using Life Cycle Assessment: A workshop</a> , facilitated by Shannon Lloyd
12:00-13:00	<a href="#">Applications and issues in Life Cycle Assessment: Examining the impacts</a> , featuring Debdeep Chatterjee, Elahe Fakoor, and Zeynab Yousefzadeh
14:00-15:00	<a href="#">Careers in sustainability</a> , featuring Katerina Fragos, Anthony Garoufalos-Auger, and Faisal Shennib
16:00-17:00	<a href="#">Confronting the climate crisis: Coffee agroforestry and sustainability</a> , featuring Ivette Perfecto

## Friday, March 19th, 2021

Time	Event
10:00-12:00	<a href="#">Concordia campus as a living lab</a> , featuring Ursula Eicker, Jing Iris Hu, Alice Jarry, Chunyan Lai, Mohamed Ouf, Cassandra Lamontagne, and Carly Ziter
12:45-13:45	<a href="#">Urban sprawl and sustainability</a> , featuring Mirya Reid, Danielle Douez, and Parnian Pourtaherian
14:30-15:30	<a href="#">The Climate Emergency Committee presents Climate Geopardy</a> , facilitated by Alex Pace

