GEOGRAPHY

THE GRADUATE SCHOOL OF GEOGRAPHY AT CLARK UNIVERSITY

GEOG

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Cover Photo taken by Abby Frazier of the Maui Coast, Hawaii

WELCOME

A Note from GSG Director James McCarthy

Dear Geography Friends,

I hope this edition of our newsletter finds you all well and thriving. As I write this in mid-August, the start of the fall semester is just around the corner, and the activity levels and rhythms of the fall are already evident on campus as students and faculty return. This fall semester will, we hope, be the closest to 'normal' since the pandemic started: while there will still be covid concerns and mitigation measures, we anticipate being fully in person and able to welcome visitors to campus.

On that front, the GSG's major event for this year will be the **celebration of the 100th anniversary of the Graduate School of Geography at Clark**, which we will mark with an **in-person event on April 13-15, 2023**. [The GSG's actual 100th birthday was in the fall of 2021, but the pandemic required us to push this event back until this coming spring.] The event will kick off on the evening of **April 13** with the **Atwood Lecture**, delivered this year by **Professor Kendra McSweeney** of Ohio State University, and continue with two days of panels, field trips, and social events to mark the momentous centenary of the GSG, recognize the many people who have contributed to its truly global reputation, and consider the future of both the GSG and geography. Please **join us if you can**, and stay tuned for updates.

As always, the turn of the academic year marks arrivals and departures. We are delighted to welcome two new faculty members this year, **Gustavo Oliveira** and **Max Ritts**. Both join the GSG as Assistant Professors in Human-Environment Geography.

Gustavo, who comes to us from a position as an Assistant Professor in the Department of Global and International Studies at the University of California at Irvine, holds a Ph.D. in geography from the University of California at Berkeley, an M.A. in Philosophy from the University of Colorado at Boulder, and a B.A. in philosophy and religion from the New College of Florida. He has also held visiting positions at Swarthmore College and at Peking University and Northwest Agricultural and Forestry University in China. Gustavo's research examines agricultural, infrastructural, and other trade and investment connections between Brazil and China, and their connections with agricultural production, landscape transformations, and social contestation in both countries.

Max, who was most recently a Research Fellow in King's College at the University of Cambridge, holds a Ph.D. in geography from the University of British Columbia, an M.A. in geography from the University of Toronto, and a B.A. in history and cultural studies from McGill University. He has also held postdoctoral positions at the University of Minnesota, the Swedish University of Agricultural Sciences, and the Sociology department at the University of Cambridge. Max's research, with First Nations communities in British Columbia and others, uses ecoacoustics, ethnography, and other methods to examine both issues of indigenous sovereignty and jurisdiction, and the consequences of the increasingly technologically mediated ways through which we know and manage environments.

Visiting Assistant Professor Joe Getzoff, who taught in the department for the past two years, is leaving Clark and taking up a permanent position in International Studies at Boston College. Joe developed and taught a range of popular new Human-Environment courses and was an outstanding teacher – in fact, he won Clark's Outstanding Undergraduate Teacher of the Year Award this past year. We bid him farewell with our thanks, congratulations, and best wishes for his new position.

The GSG's commitment to excellence in teaching at all levels was clearly evident this past year, as **GSG faculty and Ph.D. students made of a clean sweep of the university's graduate and teaching awards**, winning Clark's university-wide teaching awards in every category for the past year. In addition to Joe Getzoff winning the Outstanding Undergraduate Teacher of the Year Award, Karen Frey won the Outstanding Graduate Teacher Award, Asha Best won the Outstanding Graduate Mentoring/Advising Award, and Ph.D. student Maddy Kroot won the university's Teaching Assistant Award. I congratulate and thank them all for their exceptional efforts on behalf of our students.

The pandemic's effects continue to be particularly apparent in our doctoral program. Like a great many graduate programs, the GSG admitted significantly smaller than usual cohorts in the past two years, so that we could allocate more funding to support students currently in the program and affected by the pandemic in a variety of ways, from restrictions on international travel and research to the need to take care of family members. In addition to those direct impacts, we are finding that the broader, continuing context of the pandemic is affecting some students' willingness or ability to relocate to Worcester for graduate work (out of concern, for example, that a new variant or wave could leave them unable to travel home if needed). Collectively, these impacts mean that we have work to do in rebuilding and maintaining what remains one of the world's top doctoral programs in geography.

Finally, Clark is engaged in a university-wide strategic visioning exercise to forge a vision for the university's future. Many GSG faculty are deeply involved in these efforts, and we look forward to sharing some of the ambitious ideas and plans coming out of them, and what they will mean for the GSG, over the next year.

—James McCarthy, Director

Faculty News

From left: Robert Johnston, Christopher Williams, Rinku Roy Chowdhury, and Edward Carr

The GSG Welcomes New Tenure-Track Faculty Members Dr. Max Ritts and Dr. Gustavo Oliveira

The Graduate School of Geography is very excited to welcome and acknowledge the new faculty in the department that will be joining us in the Fall of 2022, Gustavo Oliveira, Ph.D. and Max Ritts, Ph.D.

Gustavo Oliveira Ph.D., Assistant Professor

Gustavo Oliveira is a political ecologist whose research focuses on Chinese finance and investment in Brazilian agribusiness and infrastructure. He also works on critical geopolitics and the global political ecology of soy, pesticides, biofuels, land struggles, agroecology and food sovereignty, and environmental governance. He is a member of the UN Sustainable Development Solutions Network Science Panel for the Amazon, and co-editor of *Soy, Globalization, and Environmental Politics in South America* (Routledge, 2018), *Beyond the Global Land Grab: New Directions for Research on Land Struggles and Global Agrarian Change* (Routledge, 2021), and a special issue in *Political Geography* on China's Belt and Road Initiative. He is Co-PI of a USDA-funded project on the impact of the COVID-19 pandemic on US food supply chains, and he is completing a book on *Brazil, China, and the Global Land Grab*. Before joining Clark, he was assistant professor of global studies at the University of California Irvine, visiting assistant professor of economic geography at Peking University, and postdoctoral fellow in environmental studies at Swarthmore College. He has a BA in Philosophy and Religion from New College of Florida, an MA in philosophy (political theory) from the University of Colorado Boulder, and a PhD in geography from the University of California Berkeley. Professor Oliveira will teach **GEOG 118, Environment and Development in the Global South**, and a new graduate seminar titled **Global Political Ecology**, both in Spring 2023.

Max Ritts, Ph.D., Assistant Professor

Max Ritts is an environmental geographer whose research explores the intersections of social power, sensory practice, and ecological transformation. His in-process book, A Resonant Ecology (under contract with Duke UP), examines the material, affective, and conceptual force of industrial development through situated engagements with sound culture (including eco-acoustics, whalesong, noise, and Indigenous heavy metal). The book is rooted in collaborations with communities on the North Coast of British Columbia, where Max has been working since 2013. Max is also working as co-editor on a second book, The Raven Stories, an anthology that aims to centre the voices of young Indigenous scholars and critical Indigenous perspectives in the Academy. It is connected to the Harmony Essay Prize, which Max co-founded in 2011 in collaboration with the Indigenous legal advocacy RAVEN. Max's other research interests include sound studies, eco-surveillance, nature & critical theory, and experimental environmental governance.

Prior to joining Clark, Max was a College Research Associate (CRA) at King's College, University of Cambridge. He received his PhD in Geography from the University of British Columbia in 2018. Max will teach **Geog 017, Environment and Society** in Fall 2022 and Spring 2023, and a graduate seminar, provisionally titled **The Politics of Sensing** in Spring 2023.

CLIMATE CHANGE WORK MUST EXTEND BEYOND RESEARCH

Faculty urge action to confront global crisis

FROM ClarkNow, by Melissa Lynch '95, MSPC '15

Climate change is "the challenge of our time," according to Robert Johnston, director of the George Perkins Marsh Institute — but it's one that Clark University researchers are well prepared to meet. In fact, they've been confronting it for decades.

In "Global and Climate Change," four of the University's internationally renowned scholars shared their individual work, along with a common goal: that their research will inform action and help society effect transformational change. The April 29 discussion was part of the Academic Symposium, one of the events held to celebrate the Inauguration of President David B. Fithian.

Joining Johnston on the panel in Razzo Hall were Edward Carr, director of

the International Development, Community, and Environment Department; Rinku Roy Chowdhury, associate professor of geography; and Christopher A. Williams, professor of geography and director of environmental science.

Roy Chowdhury, who researches global land use and land cover change, noted that Clark has been at the forefront of land-use research since Clark's geographers organized the 1987 conference "The Earth as Transformed by Human Action." The subsequent publication, "The Earth as Transformed by Human Action: Global and Regional Changes in the Biosphere over the Past 300 Years," examined the major human forces that impact climate change.

[Roy Chowdhury] recently co-authored a study that included principles that can guide scientists, policymakers, and practitioners to meet sustainability challenges in land use, another example of research leading to climate change action.

Williams, who leads the Biogeosciences Research Group at Clark, said his "use-inspired research" has real impact in the world. "We try to research things that are important to society, and we're excited to keep doing that at Clark — a smaller institution with an outsized impact in global and climate change," he said.

Noting that "President Fithian has inspired us to think big in a culture of possibility," Wiliams suggested the creation of a new incubator at Clark to focus on the transition to clean energy and building on existing foundational research. "Its goal would be to equip society with the tools needed to get from where we are now to where we go in the future — a deep decarbonization of society."

"Society needs bold new design thinking on this crucial topic — and I think Clark is just the place to fill this gap," Williams said.

Synthesis of Research Including Clark Geography Professor Published in National Academy of Sciences Journal

Article offers principles on land use and sustainability.

From ClarkNow, By Melissa Hanson

A synthesis of research on land systems and sustainability from scientists including Rinku Roy Chowdhury, associate professor of geography, has been published in the prestigious journal *Proceedings of the National Academy of Sciences.*

The *Proceedings* article offers a set of principles that can guide scientists, policymakers, and practitioners to meet sustainability challenges in land use — a major component for addressing global challenges such as climate change and food security.

"Part of the lessons that we focus on in this article come from a need to get across a set of guiding principles that we collectively must keep in mind if we truly want to manage land sustainably," says Roy Chowdhury. "To manage land sustainably, we also need to manage it more equitably. "Worldwide, about 85% of farms are small farms of less than five acres. However, the majority of farmland area around the globe is contained in relatively few, very large farms. This reflects fundamental inequalities in land ownership and access, leads to disproportionate impacts on agricultural economy and trade, and illustrates the disparities between the distribution of benefits and burdens, says Roy Chowdhury.

Separately, Roy Chowdhury was one of the coordinating lead authors of a 2019 global assessment report of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. The report, a synthesis of global biodiversity, found that 1 million animal and plant species are threatened with extinction, many within decades.

Clark's New Data Science Major Prepares Students for an Information-Driven World

Interdisciplinary program connects five fields, with more to come.

From ClarkNow, by Melissa Lynch '95, MSPC '15 & Zoe Wright '21

The new data science major prepares students for success in an increasingly digitized world. Directed by Li Han, professor of computer science, the program provides students with the foundational knowledge and functional experience needed for success in the growing data sciences field — the U.S. Bureau of Labor Statistics projects a 31 percent growth in data science occupations in the next decade.

The data science major builds on the success of the data science minor, which was first offered in 2019 and has since become one of the most popular minors at Clark. In the major, students can earn a bachelor's degree through the completion of eight foundational courses and six electives within their chosen area of specialization. Tracks are offered in computer science, mathematics, geography/GIS, economics, and management.

At an open house earlier this month, professors in the five specialization tracks discussed how they use data science in their fields. Lyndon Estes, associate professor of geography, said he relies on geographic data, modeling, GIS, and statistics to understand global agricultural change. Data science gives geographers an unprecedented ability to interpret what's going on around the world.

Geographer Gil Pontius to Teach Digital Map-Analysis Overseas

Clark professor awarded Fulbright to instruct scientists and scholars

From ClarkNow, By Melissa Hanson

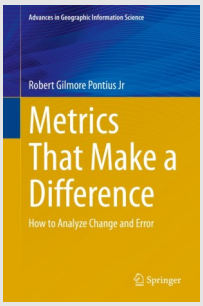
Clark geography Professor Gil Pontius has been selected as a 2022-2023 Fulbright Scholar to share his expertise in analyzing digital maps with the Brazil-based organization MapBiomas. He will spend a month and a half this summer and two and a half months next summer in Porto Alegre in Southern Brazil, teaching the foundational mathematical equations to scientists, professors, and students that will help them sift through data from satellites to measure land change.

Pontius was urged to apply for the Fulbright by MapBiomas. He became a member of the organization's Independent Committee of Scientific Advice two years ago and was stunned by its expansive research and database. Though MapBiomas has accumulated an enormous collection of digital maps, it is still building the expertise to analyze its records.

The organization's maps, which are compiled from satellite images, display nearly the entirety of South America over the last 36 years. The maps contain millions of pixels, with each pixel representing a 30- meter by 30-meter swath of land. Pontius will teach the organization's scientists the math needed to track how much forest has been lost or gained in Brazil, as well as other changes in land cover, water resources, and agriculture. MapBiomas will then be able to integrate its research agenda with Pontius's methods.

It's challenging to take a time series of satellite images and convert them to a time series of maps that show true changes on the ground. During his time in Brazil, Pontius will teach researchers to interpret satellite data given the suspected errors in the maps. He notes that some changes appearing on digital maps do not necessarily reflect real changes on the ground. He and his students are developing clearly interpretable analytical methods to maximize understanding.
With Pontius's methods, MapBiomas can use its database to inform initiatives that address such issues as deforestation and the evolution of wetlands.

Pontius says the fate of Brazil has a critical impact on the global environment. "The Amazon is like the lungs of the planet, and it's being burnt down," he says. "If the burning continues, it's going to influence the world even more. It affects climate change, biodiversity, agriculture, sustainability, and a variety of additional factors."



The Fulbright award follows the release of Pontius's book, "Metrics that Make a Difference: How to Analyze Change and Error," which was published earlier this year. The book, which is targeted to university students and professionals, is a compilation of fundamental ideas he has developed concerning quantitative research methods that apply to numerous professions.

'THE TRUTH IS WHAT WE SEE ON THE GROUND'

Geographers consider conditions bringing both subtle and radical changes to the earth
BY CLARK NEWS AND MEDIA RELATIONS

Geography Professor Gil Pontius opened the session "Geography of Changing Lands and Seas" with a brain teaser that illustrated how metrics can be applied — in different ways and toward different ends — to try and reach an agreed-upon truth. It's an ambitious pursuit, he noted, particularly when one is researching land change through the use of both remote-sensing technology and in-person observation. "The truth is what we see on the ground," he said.

From left: Karen Frey, Lyndon Estes, John Rogan, Deborah Martin, and

His was a fitting introduction to the April 29 event, at which his fellow panelists from the Graduate School of Geography shared their stories of striving to make an impact in a world being altered by climate change, development, and other factors. The discussion was part of the Academic Symposium, one of the events held to celebrate the Inauguration of President David B. Fithian.

Professors John Rogan and Deborah Martin, who direct the Human-Environment Regional Observatory (HERO) program, noted that in its 23-year history the program has created opportunities for 180 students to conduct hands-on research in Worcester and surrounding towns. Clark students have been critical contributors to the Greening the Gateway Cities initiative and in the local and federal response to the Asian long-horned beetle infestation that devastated thousands of trees in Worcester's Burncoat and Greendale neighborhoods.

Martin noted that students have enjoyed opportunities to interact with policymakers and stakeholders, and have published their research in various publications both as co-authors and lead authors. Most recently, HERO students collaborated with the Worcester community to restore Hadwen Arboretum, the Clark-owned 6.4-acre woodland property used for hiking and ecological research.

Professor Lyndon Estes described the work he and Clark graduate students, along with other colleagues, have done in Africa, where food demand is expected to triple by 2050. He specified projects undertaken in Ghana, Zambia, and Tanzania, that have the goal of helping local farmers improve their crop yields with the help of remote imaging analysis. Tactics like drone images, in-person field visits, and better mapping of crops are helping determine where efforts can be applied to better tailor farm-management techniques.

In Zambia, Estes said, a study funded by the National Science Foundation and NASA is tracking long-term agricultural expansion and the cultural change it has brought. Another NASA-funded study, in Tanzania, employs satellites to track the migratory habits of elephants, which helps inform decisions about where agricultural and conservation land is placed. Estes told the audience that he hoped these examples give them an idea of the "real revolution" taking place in geospatial analytical capabilities.

The session moved from the lands of Africa to the seas of Antarctica as Professor Karen Frey offered a look at her work researching the effects of melting sea ice on marine ecosystems, the biochemistry of permafrost environments, and glacier, icesheet, and snow-melt dynamics in Antarctica, Siberia, Greenland, and Alaska. She noted the robust cohort of students over the years who have sailed with her on icebreakers to conduct research, with two students accompanying her this summer to the Bering and Chukchi seas.

Frey noted that temperatures in arctic areas are warming four times faster than average global temperatures, as bright reflective surfaces like snow and ice continue to melt and are replaced by dark sea water. She said that each year over the last 42 years the arctic loses sea ice mass that's equivalent in size to the state of South Carolina, and showed slides depicting "melt ponds" that are allowing light to be transmitted through sea-ice surface, allowing for photosynthesis to take place beneath the sea. The process is resulting in "dire consequences" for arctic ecosystems, she said.

Faculty News

When an audience member asked how Clark's geographers respond to climate-change skepticism, Pontius noted that doing so can be challenging, even within the scientific community. He said his most highly cited paper strongly discredits a metric that is "inappropriate and makes no sense" yet is still embraced by many other scientists. "That's my baseline for how difficult it is to change people's attitudes and habits."

Professor Karen Frey prepares for summer field study of decreasing Arctic sea ice

Polar scientist contributed to 16th Arctic report Card

From ClarkNow, By Melissa Hanson

Oceans are warming and sea ice is declining. It's the consistent and disturbing trend Karen Frey has studied for years in the Arctic region.

"It's really important to reiterate that climate warming has been rapid and persistent in the Arctic over the past several decades, with profound and fundamental shifts across the region as a result," says Frey, a polar scientist and professor in the Graduate School of Geography.

On the heels of participating in the National Oceanic and Atmospheric Administration's 16th Arctic Report Card, Frey is preparing for the Arctic Science Summit Week in March and field research this summer.

As vice chair of the Marine Working Group of the International Arctic Science Committee, Frey is looking forward to meeting international colleagues during the summit. The week serves as a chance to share data and information that deepens the collective understanding of the dramatic impact fast-moving climate change is making on the region.

Recently, the Report Card has recorded the impacts of climate change to indigenous communities across the Arctic, with particular focus on food security and algae blooms. Bringing in the human dimension is vital when thinking about climate change, says Frey, who has been a lead author in the annual report since 2011.

Frey was among 111 scientists from 12 nations who compiled the current report card. Significant findings include:

The October-December 2020 period was the warmest Arctic autumn on record dating back to 1900.

The snow-free period across the Eurasian Arctic during summer 2020 was the longest since at least 1990.

The total extent of sea ice in September 2021 was the 12th lowest on record. All 15 of the lowest minimum extents have occurred in the last 15 years.

Frey is preparing for field research this summer on the Canadian Coast Guard Ship Sir Wilfrid Laurier to study the impacts of warming and sea ice decline on marine ecosystems in the Bering and Chukchi seas. The ongoing research is funded National Science Foundation in collaboration with the University of Maryland Center for Environmental Science.

"Some of us are interested in the physical and biogeochemical properties of the water column. Other scientists are interested in the sediments and food web at the seafloor. There are a variety of specific scientific goals (and therefore measurements and sample collections that take place) onboard the ship," says Frey.

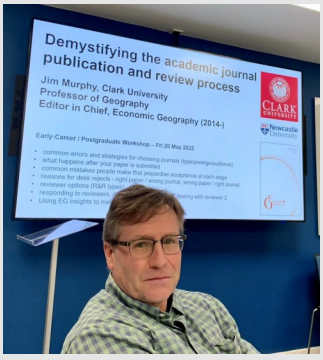
The Bering Sea experienced unprecedented declines of sea ice over the last five years, Frey said. It's a phenomenon she wants to study more closely.

"I think it's really important to understand the consequences of that kind of stark drop-off of sea ice," says Frey. "Seawater temperatures became very warm and the temperatures of bottom waters that come into contact with the seafloor also became very warm. I think one big question is what is the resilience of the ecosystem to events like that? Can ecosystems bounce back if we have a subsequent cold winter or are there long-term consequences of those rapid sea ice decline and warming events?"

Last summer, four Clark scientists were onboard the Canadian ship: Frey, Sophie Spiliotopoulos, an M.S./GIS student, and Clare Gaffey and Anna Zhu, both doctoral students studying geography.

Professor Jim Murphy took on Manchester and Newcastle this May

Jim Murphy spent most of May 2022 finally realizing a Hallsworth Fellowship at the University of Manchester's (UK) Global Development Institute (GDI). The Fellowship was originally planned for May 2020 but COVID restrictions delayed it significantly. While in Manchester, Jim interacted with many faculty and students in the GDI and the Geography School, and gave two presentations on recent research work, one for the GDI and one for the African Cities Research Consortium. While in the UK, he was invited to Newcastle University to give a talk at the School of Geography, Politics, and Sociology where he also led a workshop on publishing for early career researchers. Beyond these professional commitments, and happily after the long COVID isolation, he was able to reconnect in person with long-standing colleagues, old friends, and former students – including Rory Horner (Manchester), Seth Schindler (Manchester), and Jessa Loomis (Newcastle). Attending a premiership football (soccer) match – Man City versus Newcastle United no less – was a personal highlight as well, a bucket-list item for Jim!



Photos by Prof. Jim Murphy (top to bottom, L to R):
Newcastle workshop, Jim in the Man City Stadium, Man City Stadium Entrance, and the Manchester University Green

Graduate Student News

Clark Doctoral Student Partners with City Advocacy Group to Identify Gas Leaks

Research includes study of dying trees in Worcester

From ClarkNow, by Melissa Hanson

When a tree is affected by a gas leak, it starts to die in a characteristic way, losing leaves from the top down. It's something Sarah Lerman-Sinkoff, a doctoral student studying geography at Clark University, has started to notice. Though not a tree physiologist, Lerman-Sinkoff is a human environment geographer interested in people's relationships with their environments.

Lerman-Sinkoff is working on three papers, one of which focuses on testing low-cost monitors to see if they can pick up the presence of gas, part of an effort to develop monitoring and scientific techniques that are useful to hold corporate utility companies accountable for leaks.

Lerman-Sinkoff coordinated research through a community-based partnership between Mothers Out Front Worcester, the Wylie Environmental Data Justice lab at Northeastern University's Social Science Environmental Health Institute, and the Civic Science for Environmental Futures Collaborative at Arizona State University. Their dissertation advisor at Clark, geography Professor John Rogan, also co-directs Clark's Human Environment Research Observatory (HERO). Together, they developed a curriculum that allows people to detect gas leaks in their neighborhood and learn about how such leaks threaten the climate, hurt vulnerable people, and damage trees. The curriculum also offers strategies for taking action once leaks are discovered.

The curriculum is available online featuring illustrations from Worcester-based artist Hana Lasell. Funding for the project came from JPB Foundation for Environmental Health Fellowship, the Sussman Foundation, and the Marsh Institute's Geller Fund at Clark University.

Lerman-Sinkoff and Mothers Out Front Worcester have been coordinating community walks to hunt for gas leaks in local neighborhoods and teach city residents how to use basic tools to measure for leaks. The goal is to build a base of knowledge among residents so they can diagnose problems and call for greater public investment in finding alternatives. "If knowledge only resides in a few experts, how do you have trust," says Lerman-Sinkoff.

The COVID-19 pandemic has made the public more aware of issues with air quality and ventilation, while new technologies for heating, like ground source and air source heat pumps, have become more commonplace.

Do animals play a role in their own preservation?

Clark researcher finds wildlife make key decisions about survival

From ClarkNow, by Melissa Hanson

Around the globe, conservation and management programs have struggled to prevent conflict between humans and animals, an issue that may boil down to how humans view animals in the first place, says Roopa Krithivasan, a Ph.D. candidate in Clark's Graduate School of Geography.

New research suggests that instead of thinking of wildlife as objects to be managed, conservation programs can observe animals' actions, personalities, and decision-making processes to better help preserve populations. In a recent piece published in the journal Conservation Biology, co-lead researchers Krithivasan and Emilie Edelblutte, a Ph.D. candidate at Boston University, and Matthew Hayek, a co-author and an assistant professor at New York University, found that animals can be agents in their own conservation. The paper is written for an audience of wildlife managers and conservationists who work in places with challenges involving human and wildlife interaction. Experts and practitioners must think of new ways to co-exist with animals in a world where all species are constantly adapting, Krithivasan says.

Before doing this research, Krithivasan thought of complex decision-making as a process unique to only highly intelligent mammals.

"Decisions are being made by every animal out there, constantly influencing the environment," Krithivasan says. "In the context of conservation, animals already actively influence and participate in conservation and management outcomes and do so in ways that constantly reshape the landscapes, cultures, and histories that humans and wildlife share."

"Climate change is one of the things that's forcing human and non-human species to make novel decisions and to take new actions," Krithivasan says. "The world isn't static, and there are constant dynamic changes and fluxes that affect how we react to the world around us."

Clark students partner with Wildlife Conservation Society

Decade of collaboration serves animal protection efforts worldwide

From ClarkNow

Clark University's 10-year partnership with the Wildlife Conservation Society continued this spring, as 10 Clark students in the Wildlife Conservation seminar collaborated with WSC staff to craft a climate risk-conflict-migration analysis for Mesoamerica and South Sudan. The seminar, taught by John Rogan, professor of geography, represented a mix of undergraduate, master's, and doctoral students in geography, geographic information science, and environmental science and policy.

Dr. David Wilkie, director of conservation measures for the Wildlife Conservation Society, lauded the Clark student team, whom he refers to as Clark Consulting, for their thoughtful collaboration.

"Clark Consulting did it again," Wilkie said. "We asked an impossible question: assess the risk of population displacement into conservation areas as a result of environmental and socio-political shocks. The Wildlife Conservation Society had no idea how to answer this, nor any idea that there was indeed an answer. But Clark Consulting did not flinch — they let us know what risks were knowable, and what information WCS might need to gather to know more. It was another success. Well done, Clark Consulting."

The partnership between WCS and Clark University began a decade ago

when Rogan and fellow professor of geography Florencia Sangermano led a set of research projects with Clark students in partnership with Wilkie.

Since then, Clark undergraduate and graduate students have worked to create solutions for some of the most pressing challenges to wildlife conservation. These projects have ranged widely in geographic scope and application — from monitoring elephant movement for habitat assessment in Tanzania to tracking the impact of wildfire and regional climate variability on grassland quality in Mongolia.

The students in this year's Wildlife Conservation seminar, pictured above, are (back) Aiyin Zhang, Ph.D. '24, Kasyan Green '21, M.S./GIS '22, Galen Oettel '21, M.S./GIS '22, and Christopher Radovic '21, M.S./ES&P '22; (front) David Smith, M.S./GIS '22, Anna Bebbington, M.S./GIS '22, Madeline Regenye '22, M.S./GIS '23, Carly Cascione '21, M.S./ES&P '22, and David Henriques '22, M.S./GIS '23. Not pictured: Caleigh McLaren '22, M.S./GIS '23.

Nick Mellis helps his fellow students find their way

Self-created map guides Clarkies through Worcester's trails and transit system

From ClarkNow, by Melissa Hanson

When Nick Mellis '21/M.A. '22, arrived at Clark University's Worcester campus, he was already familiar with the city's trails and public transit having grown up nearby in Lancaster. That wasn't the case for many of his peers.

"I realized a lot of Clark students didn't know where to go or what they could do in the area," says Mellis.

That led Mellis, who is in the fifth-year program pursuing a master's in Community Development and Planning, to develop what became "The Trails and Transit Map" for Clark students.

Mellis came up with the idea for the map while majoring in geography as an undergraduate. In a graphic design course, he undertook a class project that evolved into a directed study under Sherry Freyermuth, assistant professor in the Department of Visual and Performing Arts.

"To figure out what types of maps look good and look bad, I called more than one hundred offices of tourism and transit agencies to request their maps in the mail," says Mellis, who now has a box replete with samples. "Some of the best examples were maps from places that surprised me like Iowa City, Iowa, or Eugene, Oregon."

Some products inspired Mellis. Others showed him design elements he wanted to avoid.

"He called any place that would pick up the phone and talk with him about their maps and transit system," says Freyermuth. "I helped with the design process, and I was proud of all the work he did." Mellis engaged with the community by hosting several discussions and brainstorming sessions to gather feedback.

"I stood next to a poster of the map in Red Square and asked students, faculty, and staff walking by how it could be improved and if it included information they thought was useful and relevant," he says. "I wanted to ensure that the map was understandable and easy to use for everyone."

The map Mellis created combined his GIS and graphic design skills. On one side is a transit map to give students a better understanding of Worcester's transportation system and on the other side is a trails map to show students how to access different outdoor areas.

Mellis has been intrigued by maps since he was eight years old and memorized the New York City subway map. His interest expanded over time, and Mellis says he now sees this project as a way to address the impacts of climate change by encouraging people to seek outdoor locations via public transportation.

Mellis adds that Worcester has hybrid electric buses, which are fare-free through at least the end of the year.

A grant from the Clark Undergraduate Student Council allowed Mellis to print and distribute the maps.

"This project shows potential students that if you have a passion, Clark supports it," says Freyermuth.

Mellis worked with a map printer in Denver to publish 2,500 copies of the map, which are available across campus, including at the Goddard Library, the Information Desk in the University Center, and the Office of Community Engagement and Volunteering.

"I've seen people using it around campus and that's the greatest feeling ever," he says. "That makes me so happy."

After graduation, Mellis wants to continue doing cartography work or pursue a career as an urban planner.

Graduate scholars earn Sussman Fund awards to support environmental research

Geography doctoral students receive dissertation writing fellowships

From ClarkNow, by Erica Pellegrino '21, MSC '22

Clark graduate students working on a range of topics — from improving the use of satellites and artificial intelligence in flood tracking to examining the socio-environmental factors that affect the existence and growth of urban forests — examining the socio-environmental factors that affect the existence and growth of urban forests — have received fellowships from the Edna Bailey Sussman Fund, which supports summer research opportunities in environmental studies. The Fund has provided funding to master's and doctoral researchers in the Graduate School of Geography since 2014.

Since 2014, Clark has received nearly $320,000 to assist graduate research fellows with their projects; in 2021, the Sussman Fund supported the research of six geography Ph.D. students and six master's students. In addition, the Fund awarded Doctoral Dissertation Writing Fellowships to five geography Ph.D. students in the final stages of their dissertation writing.

The total Sussman awards for the 17 graduate students in 2021 was $130,000.

Graduate Student News

Sussman Graduate Research Fellowships:

Due to the pandemic, many of the research fellows conducted their work through a combination of remote and in-person experiences.

During his research, Xiangyu Wen, M.S./GIS '22, completed an internship with Cloud to Street, a company that uses a combination of satellites and artificial intelligence to track floods in almost real time. At Cloud to Street, Wen was mentored by a fellow Clarkie, Tyler Anderson, M.A. '18, M.S./GIS '19. Wen's adviser is Professor R. Gil Pontius.

Aandishah Samara '21, M.S./GIS '22, explored the connection between watershed characteristics and higher river nitrate concentrations, as well as the possibility of using that research to build a predictive model for understanding the drivers of river biogeochemical concentrations. Her off-campus host was the Woodwell Climate Research Center; Professor Frey is her adviser.

Arman Bajracharya, whose adviser is Professor Rinku Roy Chowdhury, explained that his research is examining the "associations between land surface temperatures across different types of land use, distribution of land use across environmental justice communities — characterized by minority population, low income, and English isolation — and the relationship between tree cover with neighborhood socioeconomic factors."

Also receiving Sussman research fellowships in 2021 were:

Michael Athay, Ph.D student, "Curbing U.S. Carbon Pollution: Electrifying Automobility through Citizen Science Communication" (Professor Yuko Aoyama, adviser; Dartmouth College, host institution)

Sarah Lerman Sinkoff, Ph.D. student, "Gas Leaks and the Urban Tree Canopy: Connecting Heat Islands to Energy Insecurity" (Professor John Rogan, adviser; Northeastern Social Science Environmental Health Research Institute, host institution)

Ethan Manley '21, M.S./GIS '22, "Mapping Analysis of Non-Point Source Pollutants and Nutrients in the Ipswich and Parker River Watersheds Due to Land Use" (Professor R. Gil Pontius, adviser; University of New Hampshire and Plum Island Ecosystems LTER Group, host institutions)

Sadie Murray '21, M.S./GIS '22, "Increasing Carbon Neutrality in New England Biolabs" (Professor R. Gil Pontius, adviser; New England Biolabs, host institution)

Galen Oettel '21, M.S./GIS '22, "Evaluating the contribution of newly acquired properties by the Greater Worcester Land Trust (GWLT) to the connectivity of green space in Worcester, MA" (Professor John Rogan, adviser; the Greater Worcester Land Trust, host institution)

Shiqi Tao, Ph.D. student, "Mapping solar panel installations and exploring the associated environmental impacts in Massachusetts" (Professor John Rogan, adviser; Massachusetts Audubon, host institution)

Julia Wagner, Ph.D. student, "Response and Responsibility: Communicating civic environmental stewardship and climate resiliency knowledge and practice" (Professor James McCarthy, adviser; U.S. Forest Service, New York City Urban Field Station, host institution)

Sitian Xiong, Ph.D. student, "Enabling Long-term Climate Impact Analysis Through Cross-sensor Based Remote Sensing Observation" (Professor Lyndon Estes, adviser; Radiant Earth Foundation, host institution)

Aiyin Zhang, Ph.D. student, "Methods to characterize changes in salt marshes of estuarine ecosystems in response to sea level rise" (Professor R. Gil Pontius, adviser; Boston University Department of Earth and Environment, host institution)

Dissertation Writing Fellowships:

Doctoral student Mara van den Bold received a writing fellowship for her dissertation, "Implications of influence: examining the evolving role of U.S.-based development institutions in renewable energy development globally." Her research addresses how large-scale renewable energy projects in Senegal impact surrounding communities' employment, land use, and access to energy. (Professor James McCarthy: Advisor)

Marc Healy, a doctoral student advised by Professor John Rogan, also received a dissertation writing fellowship for his study, "Throwing Shade: Urban forests in Massachusetts' Gateway Cities." His research centered around the Greening the Gateway Cities tree planting initiative in Massachusetts, and he investigated the human-environmental effects of urban forests, why canopies change over time, and how those canopies are managed.

Other dissertation writing fellows include:

Melissa Bollman-Shih, "Planning a sustainable future: The environmental impacts of US renewable energy policies" (Professor James McCarthy, adviser)

Surendra Shrestha, "Assessing Regional Land Surface Biophysical and Biochemical Responses to Wildfire with Remote Sensing and Land Surface Model Integration" (Professor Christopher Williams, adviser)

Luisa Young, "Characterizing Arctic Ocean Sea Ice Environments: from melt ponds to phytoplankton phenology" (Professor Karen Frey, adviser)

From top to bottom:
(Top) Majors Fair (3/23/2022). Shradha Birdika, Danielle Hall, Ksenia Smart, and Abby Beilman volunteering for Geography, GES, and ES.
(Bottom) Prof. Rogan giving a tour of the Hadwen Arboretum during Practicing Geog. Week.
PC: Yaa Poku

Undergraduate Student News

Practicing Geography Week Relaunched in Spring 2022

In April of 2022, the annual Practicing Geography Week was relaunched after an extended hiatus due to the Covid-19 pandemic, similar to many other events put on by the Geography department. PGW was kicked off by a mini Ted Talk series made up of faculty and graduate students. The 17-minute talks included Prof. Karen Frey's "Skylights to the Ocean: Impacts of Light Transmittance Through Arctic Sea Ice, PhD Student Gisselle Vila Benites' "Indigenous participation in Amazon water governance", Prof. Chris Williams' "Looking to Land for Climate Solutions", Master's student Nick Mellis' "Creating the Trails & Transit Map: A Clarkie's Guide Through Worcester", and Prof. Gil Pontius' "Use Metrics to Make a Difference".

It was a very exciting time inducting the 24 new members of the Alpha Sigma chapter of Gamma Theta Upsilon, Geographical Honor Society. The small ceremony was led by Prof. Gil Pontius, Undergraduate Studies Chair, and took place on the second day of PGW. We congratulate all the newest members of this international society!

The evening following the GTU induction, we were very fortunate to have alumni volunteers lead an Alumni Connections Panel where they discussed applying geographical knowledge and learning to life after Clark! We were joined via Zoom by Amy Nelson MA GIS '01, Deputy Geospatial Information Officer at the U.S. Department of Transportation, Dani Fontaine-Rainen PhD '11, Director of the First Year Experience Project at the university of Cape Town, South Africa, and Ken Rait BA Physical Geography '85, MA Environmental Affairs/Water Resource Management, Director of U.S. Public Lands Program. The 90-minute panel and Q&A was an eye-opening experience for the students and staff present.

Last, but certainly not least, we wrapped up Practicing Geography Week with a beautiful walk to the Hadwen Arboretum led by Prof. John Rogan. Prof. Rogan has been working on restoring the Arboretum to its former glory with some of the students in the HERO program and the Arboretum Advocates of Clark. We highly recommend that you take the quick walk to the Arboretum when you have a chance.

Uncovering the secrets of water, from Siberia to Massachusetts

Professor Karen Frey's research method inspires Abby Beilman '23

From ClarkNow, by Melissa Hanson

When Abby Beilman '23 took geography professor Karen Frey's Arctic and the Anthropocene course as a sophomore, they discovered parallels between Frey's research and their interests. Now, Beilman is spending the summer and fall sampling water from tributaries of the Blackstone River, mirroring a method Frey used in Siberia.

A self-described history and policy nerd, Beilman is looking for possible correlations between their research and the Blackstone's industrial heritage. They want to determine how past pollution impacted the growth of plants in the Blackstone River Watershed; if the impact of pollution on the waterbody is observed in CDOM measurements; and if visual evidence of CDOM, like water color, aligns with visual evidence of pollution, like litter.

"We are considering the level of urbanization as part of our research — with sites existing on a scale from solidly urbanized to solidly rural This could certainly play into things when considering which areas have experienced the most industrial impact," Beilman says.

Beilman collects water samples one day per week, visiting eight sites over the course of about seven hours. This is Beilman's honors thesis, so the work will continue into the fall.

Beilman arrived at Coal Mine Brook in Worcester on a recent July morning and made the short hike down to the water. They recorded the air temperature (21 degrees Celsius), and the quality of the water — on this day, the water wasn't cloudy or foamy. Beilman put on gloves before wading into the stream to collect a sample. They also recorded the water temperature, pH, conductivity, and atmospheric pressure before packing up and heading to the next site.

"The samples will show how the concentration of visible organic matter is changing," Beilman says. "That can have implications for carbon cycling, climate change, and how water relates to the carbon cycle."

Until Beilman can analyze all the samples, it's hard to determine any correlation between CDOM and pollution.

The work could aid organizations devoted to studying and improving the watershed, like the Blackstone Watershed Collaborative, run through Clark's George Perkins Marsh Institute.

Beilman majors in environmental science on the earth system science track and plans to earn an M.S. in environmental science and policy through Clark's accelerated degree program. They hope to continue pursuing the Blackstone project at the master's level.

Beilman wants to expand their research and thinks the Merrimack River Watershed in Greater Lowell could provide an interesting point of comparison as a future project. The area also has an industrial past.

This summer the HERO team embarked on two new and exciting projects

Led by Professors Martin and Rogan, and student managers Nicholas Geron, Madeline Regenye and Apple Gould-Shultz

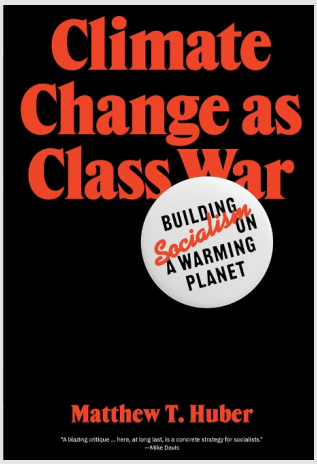
The HERO Team began the summer in collaboration with Professor Rinku Roy Chowdhury at the Broad Meadow Brook Conservation Center & Wildlife Sanctuary in Worcester. There, they conducted interviews with residents who live in neighborhoods close to the Broad Meadow Brook wetland which will be restored to its natural condition over the next several years. This work was followed by fieldwork in Providence and nearby towns, in collaboration with Groundwork Rhode Island to inventory the health of trees planted by Groundwork over the past two years, while also recording air temperature, air quality and the location of potential new tree planting sites. For more information, you can check out the HERO website as well as their Instagram, @clarku_heroprogram.

Alumni News

Alex Segrè Cohen '16 Defended her PhD in Psychology at the University of Southern California

Her interdisciplinary research is at the intersection of psychology, communication, and decision-making about the environment and human health, and she has an overarching research goal to translate science into action. Alex will be joining the faculty in the School of Journalism and Communication at the University of Oregon as an Assistant Professor of Risk and Environmental Communication this upcoming fall.

Climate Change as Class War: Building Socialism on a Warming Planet, by Matthew T. Huber, Ph.D. '09



Why the struggle against climate change is a class struggle.

The climate crisis is not primarily a problem of 'believing science' or individual 'carbon footprints'—it is a class problem rooted in who owns, controls and profits from material production. As such, it will take a class struggle to solve.

In this groundbreaking class analysis, Matthew T. Huber argues that the carbon-intensive capitalist class must be confronted for producing climate change. Yet, the narrow and unpopular roots of climate politics in the professional class is not capable of building a movement to face this challenge. For an alternative strategy, he proposes climate politics that will appeal to the vast majority of society: the working-class. Huber evaluates the Green New Deal as a first attempt to channel working class material and ecological interests and advocates building union power in the very energy system we so need to dramatically transform. In the end, as in classical socialist movements of the early twentieth Century, winning the climate struggle will require an internationalist approach based on a form of planetary working class solidarity.

USM Names Temple University's Dr. Michele Masucci, Ph.D. '87, as Vice Chancellor for Research and Economic Development

University System of Maryland News, August 11, 2022

University System of Maryland (USM) Chancellor Jay A. Perman has appointed Dr. Michele Masucci to the position of USM vice chancellor for research and economic development. Masucci joins the USM from Temple University, where she has served as both a faculty member and vice president for research.

Reporting directly to Chancellor Perman, Masucci will be responsible for promoting and developing strategic research and business partnerships among the USM campuses, state and federal government, laboratories and agencies, corporations and industry, and other public and private higher education institutions. A major focus of these efforts will be areas of science and technology that impact the economic and workforce development of Maryland such as life sciences, clean energy, "big data," cyber security, and advanced manufacturing.

In her current role at Temple, Masucci has been responsible for managing enterprise-wide grant services, research development, regulatory compliance, and technology transfer for all research activities across Temple University and in partnership with Temple Health.

She will join the USM on Sept. 6, 2022.

In addition to her vice chancellor position, Masucci has an appointment in the Department of Geography & Environmental Systems at the University of Maryland, Baltimore County (UMBC).

Masucci first joined Temple in 1997 as a faculty member in the Department of Geography and Urban Studies. At Temple University, she has served as department chair, center director, and research enterprise leader. She was appointed vice provost for research in 2012 and promoted to vice president in 2015 and was credited with managing a substantial increase in research productivity at Temple—which reached an annual high of $268.2 million in awards and $299.8 million in research expenditures in Fiscal Year 2021 (as reported to the National Science Foundation Survey of Higher Education Research and Development).

Masucci received both her M.A. and Ph.D. in Geography from Clark University in 1986 and 1987, respectively. She also holds a B.S. in Geography and Regional Planning from a USM institution, Salisbury University (1982). She held tenure-track appointments at West Georgia University and Auburn University before joining the Temple faculty.

Masucci's academic research examines how information barriers impact community development and environmental quality—including access to health, education, and social services. She has also worked to develop university-community partnerships with organizations that address human rights issues, and with a number of national and international community and environmental planning organizations.

Laura Sauls, Ph.D. 2019, appointed Tenure Track position

As an Assistant Professor in Global Affairs at George Mason University in Virginia. Laura will be leaving the University of Sheffield, but hopes to remain affiliated with their Geography department.

GTU induction ceremony led by Prof. Gil Pontius PC:Y. Poku

Department News

Geography Makes a Clean Sweep of University Graduate and teaching awards!!

GSG faculty and students were nominated and won university sponsored graduate and teaching awards. Ph.D. student Maddy Kroot won the annual Teaching Assistant Award. Dr. Karen Frey won the university's Outstanding Graduate Teacher Award. Dr. Asha Best won the Outstanding Graduate Mentoring/Advising Award. VAP Dr. Joseph Getzoff won the university's Outstanding Undergraduate Teacher of the Year Award. Congrats to all and thank you for your great contributions to the GSG!

Students win awards at American Association of Geographers 2022 meeting

Projects analyze land change in U.S. and Brazil

From ClarkNow, by Melissa Hanson

At its 2022 meeting, held virtually, the American Association of Geographers recognized four Clark students for projects that explored topics like the shrinking of ponds in Massachusetts and land use change in Brazil.

Ruthanne Ward, a junior majoring in Geography, earned first place in the undergraduate competition. Claire Wang, pursuing an M.S. in Geographic Information Science, placed third in the remote sensing competition. In the cartography competition, Aiyin Zhang, a doctoral student in the Graduate School of Geography, placed third, and Luke Brogna, a junior majoring in Geography, received an honorable mention. Ward's project questioned the project qualification guidelines of REDD+. A United Nations initiative, REDD+ is a climate change mitigation solution that aims to reduce deforestation and provide credits to carbon-emitting companies for preserving forests. Ward and her group, which included Meghan Davinroy '21, questioned what areas are qualified to receive carbon credits. They found that companies could manipulate figures through GIS processes to become more likely to qualify for carbon credits.

The AAG is a professional and scholarly association representing educators, researchers, and practitioners in geography. The largest geography society in the world, thousands attend its annual meeting to participate in specialty groups focused on an array of topics and subjects, including competitions for student geographers.

Brogna also analyzed qualification criteria for REDD+ projects. He simulated forest loss in Brazil and created graphs that showed steep forest loss from 2000 to 2010 and a more level rate of loss from 2010 to 2020. That instability can alter how projects qualify for REDD+, Brogna says.Robert Gilmore Pontius Jr., professor of Geography, says students who present at the AAG annual meeting build their credentials, practice public speaking, and receive feedback from experts in their field.

"Pontius encouraged Zhang to present her poster. She developed a method to characterize spatial-temporal patterns of land transitions, focusing on ponds in Massachusetts. She used aerial maps from 1938, 1971, and 2013 to analyze how ponds shrunk or grew over time.

Zhang developed methods to directly examine transition patterns of ponds over a time series, unlike other popular metrics that measure patterns at a single time point. The other awards in the remote sensing competition went to Ph.D. students.

When the world came to Clark

The Graduate School of Geography was launched a century ago with a mission that persists today: to map a better future for our planet. From Clark Magazine, by Anne Gibson, Ph.D. '95

That first year, curious students could read an introduction to the new program in the academic catalog, which argued that education in geography was critical to prepare a post-World War I United States to take its deserved place in the world.

Ellen Churchill Semple

"During the last few years the American people have been awakened, in a remarkable way, to an interest, in Geography," the introduction claimed. "The period of isolation in national development is passed, and we have come to realize, almost suddenly, that the United States of America is one of the leading nations of the world and vitally interested in almost everything that is going on in the world. This awakening, and the consequent broadening of our horizon, have forced us to recognize that we have neglected in this country the scientific study of Geography."

Among the faculty tasked with carrying forward this energized educational mission were Atwood himself, Charles F. Brooks, and Ellen Churchill Semple. Brooks had founded the American Meteorological Society two years prior. "Miss Semple," as she was referred to in the catalog, was one of the foremost geographers in the country and had, that same year, assumed the role of president of the American Association of Geographers. A graduate of Vassar College, she studied geography in Europe but was denied a doctorate on account of her sex. Nonetheless, she was the first woman appointed to faculty rank at Clark.

In the century that followed, the GSG would become a global leader in a wide range of geographic scholarship, including physical, economic, urban, feminist, and Marxist geography; human-environment studies, including political ecology and the analysis of extractive industries; and, with the maturing of the digital revolution, geographic information science. Three notable peer-reviewed scholarly journals were born in Clark's Graduate School of Geography: *Economic Geography*, today one of the most heavily cited journals in the world, in 1925; *Antipode*, central to the discipline's radical turn in the 1960s and beyond, in 1969; and *Human Geography*, a relative newcomer, in 2008.

A particular strength and point of pride of the GSG is its internationally renowned doctoral program. Over the past century, it has been one of the most important centers of doctoral training in geography in North America. One of its defining features is its global reach: It both draws students from all over the world, and trains students to do research in myriad locations across the globe. Along with that international composition and perspective, the GSG's doctoral program has long been characterized by a strong sense of community and a constant intellectual ferment. It is no surprise, then, that its alumni have had a disproportionate influence in the field, with many going on to become tenured faculty at other leading departments not just in the United States, but around the world.

Department News

Economic Geography's Impact

Clark's journal, *Economic Geography* (EG), has once again significantly increased its two-year citation impact factor from 2020 (11.767) to 2021 (14.921). This is, again, an all-time high for EG and it sustains the journal's very high rankings in economics (#2 out of 379) and geography (#2 out of 85). EG is also ranked very highly in the broad/interdisciplinary category of Geography, Planning, and Development (#19 out of 747). Such success is due to the continuous efforts of EG's international editorial team, Clark-based managing editor Hilary Laraba, and the authors who always step up to the challenge of having their best work published in the journal through a constructively rigorous process that our world class reviewers/editors provide. The field of economic geography is diversifying and growing on all fronts (e.g., content, representation, geography, cross-disciplinarily) with the journal playing a leadership role as the major outlet for scholarly debates and dialogues.

Save the Date!

Clark Graduate School of Geography's Annual Wallace W. Atwood Speaker – April 13, 2023

Centennial Celebration – April 14-15, 2023

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