

# Ogmius

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# 2016

has been a year of transition for CSTPR. Former CSTPR Director Roger Pielke, Jr., moved on to the University of Colorado Athletic Department to launch a Sports Governance Center, and Max Boykoff has assumed the role of CSTPR Director. Deserai Crow began a new position as Associate Professor in the School of Public Affairs, University of Colorado-Denver this fall. Ben Hale has relocated to the CU Environmental Studies program. Lisa Dilling will be on sabbatical at Oxford during the 2016-17 academic year (see CSTPR News below for more information). While we are sorry to see them go, we are excited to welcome several new faculty, postdocs, graduate students and visitors.



*The following article -- A "Social-Impact Network for Wildfire Adaptation" -- describes the research of one of our new core faculty members, Bruce Goldstein. Bruce is an Associate Professor in the Program in Environmental Design and the Program in Environmental Studies. His work focuses on how planners, activists, public agency managers and other stakeholders collaborate to address daunting social-ecological challenges, such as restoring fire regimes in a densely populated wildlands-urban interface, harmonizing common-property resource management with international efforts to protect biodiversity, and of course climate change. Bruce is particularly interested in how learning networks can catalyze change in stable and durable institutions that are approaching dramatic social and ecological thresholds.*

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# OGMIUS EXCHANGE

## “Social-Impact Network” For Wildfire Adaptation

by Daniel W. Zietlow, Ph.D., CSTPR Writing Intern



*A wildfire near Nederland on July 9, 2016. Photo: Joe McManus.*

In the face of natural hazards, resource scarcity, climate change, and other social-ecological challenges, how does a community adapt, and how can communities combine forces to contribute to transformational change? Dr. Bruce Goldstein, an associate professor in Environmental Design and Environmental Studies and core faculty at the Center for Science and Technology Policy Research (CSTPR) at the University of Colorado Boulder takes on this pressing question.

At first glance, the root cause of environmental crises is too daunting for communities to tackle; however, Goldstein sees communities as the engine for institutional transformation. By organizing themselves into “learning networks,” communities can apply local knowledge to address issues that are very specific to their place and time, and team together to transform unstable practices into sustainable ones. Learning networks enable people to create new ideas by serving as a laboratory for best practices, and a forum for addressing basic questions like, “What is the system in which I live and how do I want to change it?”

Let’s take a look at wildfires, a pressing issue here in the western United States and one that Goldstein actively tackles. According to the Forest Service, an average of more than 73,000 wildfires burn about 7.3 million acres (over 2.9 million hectares) of land annually. Locally, Colorado experienced 6 major wildfires since 2012 that burned over 240,000 acres (over 97,000 hectares) of land, with many smaller fires occurring during this time. Typically, wildfire impacted regions rely on a fire agency to protect them and mitigate the wildfire once it has started. Because of this, around 70% of the Forest Service budget goes towards fire suppression. Yet wildfires are a natural and necessary ecological process. Efforts to suppress them only make wildfires more likely as fuels accumulate in even-aged stands, producing increasingly intense fires that are both more deadly and ecologically destructive. We therefore need to rethink how we approach wildfires and change our mindset from “suppression” to “adaptation and ecological restoration.”

Part of this work takes place among fire managers, and Goldstein has been studying a Forest Service – Nature

# OGMIUS EXCHANGE

## “Social-Impact Network” For Wildfire Adaptation



A wildfire near Nederland on July 12, 2016 Photo: AP Photo/Brennan Linsley.

**DO YOU KNOW YOUR ROLE?**  
Learn what you can do to help your community become fire adapted.

Visit [FireAdapted.org](http://FireAdapted.org)

CIVIC LEADERS	DEVELOPERS AND BUSINESS OWNERS	FIRST RESPONDERS	LAND MANAGERS	HOMEOWNERS
<ul style="list-style-type: none"> <li>Require defensible space around structures</li> <li>Don't allow development in high risk areas</li> <li>Follow safety codes to regulate building materials &amp; locations</li> </ul>	<ul style="list-style-type: none"> <li>Don't build in high risk areas</li> <li>Make sure developments have adequate defensible space</li> <li>Use non-combustible building materials</li> </ul>	<ul style="list-style-type: none"> <li>Use the Ready, Set, Go! program</li> <li>Educate your jurisdiction about fire adapted communities</li> <li>Create a fire plan with other emergency responders</li> </ul>	<ul style="list-style-type: none"> <li>Treat hazardous fuels to reduce risk from wildfire</li> <li>Identify &amp; assess wildfire risk on the land you manage</li> <li>Work collaboratively to reduce risk on the land you manage</li> </ul>	<ul style="list-style-type: none"> <li>Become a Firewise Community</li> <li>Create 100 feet of defensible space</li> <li>Keep roof &amp; gutters clean</li> </ul>

Nearly 70,000 communities are at risk from wildfires and billions are spent each year to fight them. Reduce your risk by creating and implementing a Community Wildfire Protection Plan.

Conservancy initiative called the “Fire Learning Network” since 2006; however, communities were never a large part of this conversation, and they are a critical part of reforming how we address wildfire. Beginning in 2013, Goldstein began studying a new learning network, the Fire Adapted Communities Learning Network (FACNET), which is aimed at connecting communities from across the United States in order to solve complex issues associated with wildfire adaptation. Membership is diverse, including city

fire departments, state forest services, fire councils, Native American tribes, scientists, and various other individuals.

Goldstein leads his CSTPR-based research group in studying FACNET. For instance, doctoral student Jeremiah Osborne-Gowey is focusing on interviews with stakeholders in FACNET communities such as Island Park, ID and Jacksonville, FL to determine the cultural, political, social, and ecological context of fire adaptation. Meanwhile, research associate Tom James is attending meetings between FACNET members in Ashland, OR who seek to exchange ideas and foster collaboration across their communities. Goldstein notes, “Our partnership with the FACNET is deep. We built a lot of trust and shared understanding, beginning over ten years ago when we began studying the U.S. Fire Learning Network. We aim to enhance our insight into the network through constant interaction and exchange with the netweavers, applying a participatory action research approach. Our goal is to learn together, in ways that enhance their ability to adapt their network design.”

For more information visit the CSTPR website at [http://sciencepolicy.colorado.edu/research\\_areas/fln](http://sciencepolicy.colorado.edu/research_areas/fln), Goldstein’s lab website at <http://www.brugo.org>, or the Fire Adapted Communities Learning Network website at <http://fireadaptednetwork.org>.

# OGMIUS EXCHANGE

## Environmental Rights and Adaption to Climate Change by Daniel W. Zietlow, Ph.D., CSTPR Writing Intern



*We also highlight the research of Steve Vanderheiden, who joined CSTPR as a core faculty member in 2015. Steve is an Associate Professor of Political Science and Environmental Studies at the University of Colorado Boulder, as well as Professorial Fellow at the Centre for Applied Philosophy and Public Ethics (CAPPE) in Australia. He joined the CU Boulder faculty in 2007, and specializes in normative political theory and environmental politics, with a particular focus on global governance and climate change. In addition to numerous published articles and book chapters on topics ranging from Rousseau's environmental thought to the politics of SUVs, and edited books on political theory approaches to climate change, energy politics, and environmental rights, his *Atmospheric Justice: A Political Theory of Climate Change* (Oxford, 2008) won the 2009 Harold and Margaret Sprout award from the International Studies Association for the best book on international environmental politics. Steve received his Ph.D. from the University of Wisconsin-Madison.*



*The Grand Falls of the Little Colorado River, located on the Navajo Nation in northern Arizona. Photo: Photo by Phil Konstantin/Creative Commons.*

**W**hen you think of climate change, you typically think of the physical changes occurring on Earth: the increased average temperatures, changes in rain patterns leading to drought conditions, the melting of sea ice, rising sea levels. You might also think of the ways we're trying to combat it: becoming more energy efficient and pushing for renewable power, buying locally grown food, carbon dioxide emission limits, efforts to decrease water usage. What you may not necessarily think of, though, are the issues surrounding the global governance of climate change. Enter Steve Vanderheiden,

an associate professor at the Center for Science and Technology Policy Research at the University of Colorado.

Vanderheiden specializes in normative political theory and environmental politics, with a particular interest in equity issues, democratic issues, and environmental issues as they pertain to climate change. In a society that is actively trying to adapt to a changing climate, an interesting question becomes what environmental rights should now look like, particularly territorial and water rights.

Let's take a look at questions about carbon accounting, where countries, companies, or individuals measure

# OGMIUS EXCHANGE

## Environmental Rights and Adaption to Climate Change



*An irrigation ditch in Arizona's Harquahala Valley. Photo: Bryan Schutmaat.*

greenhouse gas emissions as a metric for their “carbon footprint.” There is a debate between those who think we should calculate carbon footprint based on production of carbon dioxide versus those who think it should be based on consumption. Currently, private firms can get carbon offsets by claiming to make carbon sinks where carbon dioxide is removed from the atmosphere. Vanderheiden ponders how natural carbon sinks, such as forests or oceans, should be accounted. A forest in Canada is presumably owned by Canada, but should the carbon dioxide consumed by this forest count as a credit towards Canada’s carbon footprint? And what happens to this credit if the forest burns or is cut down for logging operations? Territorial rights, Vanderheiden argues, are thus incomplete because most have been developed for resources in and not above ground.

This summer, Vanderheiden will collaborate with philosophers, lawyers, and scientists on another issue of environmental rights – this time with water. They will investigate the governance and allocation of surface waters under increasing scarcity. By looking at policies in California, Australia, and the Netherlands, Vanderheiden and his colleagues hope to inform funding bodies

and government agencies how water use can be fairly prioritized. In the western U.S., senior water rights are currently over-allocated because they are based on historical amounts of water; however, these assumptions on available water no longer hold as water has become scarcer. So, how do you make a more equitable system? Vanderheiden admits “there are constraints on what we can feasibly do with water,” since for any reasonable water reform to occur, the water rights holders must first see the benefit of the reform. Fortunately, many do and recognize that our existing system of dealing with surface water is not sustainable given expected changes in rain, water flow, and population growth. Possible solutions range from community-driven efforts such as xeriscaping to federal-level efforts such as buying up water rights (as is happening in Australia). Vanderheiden comments that “this is interesting and exciting because I get to look at the case out here [the Colorado River] that I can link to a very similar, overdrawn river in Australia and parse out the similarities and differences in governance and what kind of reform opportunities are available.”

For more information visit the CSTPR website at [http://sciencepolicy.colorado.edu/research\\_areas/cc/](http://sciencepolicy.colorado.edu/research_areas/cc/).

# PERSONNEL NEWS

## Bruce Goldstein Group

### Tom James

Tom is an environmental social scientist interested in resilience, transformation, learning, and participatory action research. Tom's research focuses on how social-ecological change is understood and manifests at multiple scales, and how processes of research can act as a capacity building tool for positive social change. Tom has particular specialisms in agroecological transitions and sustainable agriculture, and is now translating his experiences to fire adaptation and transformative learning networks.



### Sarah Schweizer

Sarah is a Ph.D. candidate researching networks and adaptive organizations using frames of organizational change, resilience, and social learning. Sarah works as Director of Programs for the International START Secretariat where she develops scientific leadership and transdisciplinary programs in Africa and Asia-Pacific.



### Jeremiah Osborne-Gowey

Jeremiah is a Ph.D. student in the programs of Environmental Design (ENVD) and Environmental Studies (ENVS). His work tends to focus on finding harmony in coupled natural-human systems and at the intersection of science and policy. His current research focuses on understanding the evolution of learning networks as they build resilience (social and ecological) and transform natural resource management policy, practices and culture.



### Lee Frankel-Goldwater

Lee is an incoming Ph.D. student with the Environmental Studies and Design programs. His recent work includes teaching at Pace University in NYC, co-leading community programs in Costa Rica, Brazil, and Israel, and conducting an analysis of the 100 Resilient Cities Network with the Goldstein lab group. Lee's research focuses on the genesis of shared narratives for action in multicultural collaborations and learning networks, the role of action research in social-ecological systems change, and developing new models for transformative learning in youth environmental education.



## Other New Researchers and Visitors

### Jack Stilgoe

Jack Stilgoe is a senior lecturer in the department of Science and Technology Studies at University College London. He teaches courses on science and technology policy, responsible science and innovation and the governance of emerging technologies. His most recent book is *Experiment Earth: Responsible Innovation in Geoengineering* (Routledge-Earthscan). The paperback was published in June 2016.



Before joining UCL he was Senior Research Fellow at the University of Exeter, working on a framework for responsible innovation for the UK Research Councils. He was Senior Policy Adviser at the Royal Society, where he ran work on the science base, innovation, emerging technologies and public engagement. Before this, he spent four years at the independent think tank Demos, leading work on science and society. He is on the editorial board of *Public Understanding of Science*, a member of the Government's Sciencewise steering group and a member of the European Commission's expert group on Science with and for Society. He is co-editor of the *Guardian's* Political Science blog. He will be spending his sabbatical at CSTPR. He is on Twitter @jackstilgoe.

### Augusto González

Augusto González joins CSTPR this fall under the EU Fellowship program. He holds the degree of Licenciado in Geography and History from Universidad Complutense de Madrid (Spain) as well as a Master's degree in International Studies from University of Salford (United Kingdom). He joined the European Commission in 1989 and has worked in several policy areas including education and vocational training, space and research. His experience encompasses EU policy and law-making, international relations as well as human resources, financial and programme management. He is currently Adviser to the Director-General for Space Matters at the Directorate-General for Internal Market, Industry, Entrepreneurship and Small and Medium Enterprises (SMEs). Augusto lives in Brussels but maintains very close ties with his home town in Spain, where he holds elected public office (municipal councillor).



### Jessica Rich

Jessica Rich, Ph.D., joins CSTPR this fall as a CIRES Post-Doctoral Research Associate. Jessica's research investigates how work and labor are evolving in light of global environmental change. She examines the relationships between labor and

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the natural environment in conflicts over oil and gas drilling in the United States. In particular, she studies the implications of conflict discourses for professional identities, how extraction workers negotiate meanings of nature, and how nature itself shapes human action. Along with her academic work, Jessica's professional experience includes a decade of non-profit organizing in the areas of workforce development and community advocacy. Her publications can be found in *Environmental Communication* and *Ephemera: Theory & Politics in Organization*. Jessica earned her doctorate in 2016 from the Department of Communication at the University of North Carolina at Chapel Hill.



## Justin Farrell

Justin Farrell is an Assistant Professor of Sociology in the Yale School of Forestry and Environmental Studies, with a secondary appointment in the Department of Sociology. He studies environment, culture, and social movements using a mixture of methods from large-scale computational text analysis, qualitative fieldwork, network science, and machine learning. He will be spending a year at CSTPR under the CIRES Visiting Fellows Sabbatical Program.



## Julia Schubert

Julia Schubert is a Research Associate at the Forum Internationale Wissenschaft (FIW) in Bonn, where she is working on her dissertation project on "Scientific Expertise in Politics. The Case of Climate Engineering in the U.S." within the Junior Research Group "Discovering, Exploring, and Addressing Grand Societal Challenges" funded by the Mercator Foundation. Her main areas of research are sociological theory (with an emphasis on differentiation- and communication-theoretical approaches), political sociology and the sociology of science with a focus on the science-politics relation.



Julia obtained her B.A. in Social Sciences from the Philipps-University of Marburg (2010) and a M.A. in Sociology from the Ruprecht-Karls-University of Heidelberg (2014) with a thesis on the "Conditions and Prospects of Science-Based Political Decision-Making". In 2011 she completed a Traineeship at the Consulting Department of the German American Chamber of Commerce of the Midwest (GACCoM) in Chicago. She was awarded the "Alumni Preis 2014" for outstanding

achievements in the Masters-Studies of Sociology by the Max-Weber-Institute for Sociology of the University of Heidelberg.

Julia has been awarded a scholarship by the Fulbright Doctoral Program and has chosen to spend her research stay at CSTPR where she will focus on the question of how scientific expertise is becoming relevant and structurally integrated into the political decision-making process. In this context, she will study the institutional interface of scientific expertise and politics in the case of political decision-making on Climate Engineering technologies in the US.

## Suzanne Tegen

Suzanne Tegen manages the Wind and Water Deployment section at the National Renewable Energy Laboratory where she has been for 12 years. She has authored technical reports on economic impacts from distributed wind, utility-scale wind, offshore wind, community wind, and water power projects. She also studies the domestic wind and water power workforces including which types of jobs are needed in the long term. Suzanne spent one year as an NREL liaison to the Department of Energy's Wind Program in Washington, D.C. She has provided invited testimony for the state of Colorado and Colorado Energy Office, has participated in National Academy of Sciences research, and was a reviewer for the Intergovernmental Panel on Climate Change. She holds a Ph.D. in Environmental Studies (Energy Policy) from the University of Colorado at Boulder and a Bachelor of the Arts in German Literature from the University of Wisconsin-Madison. Her interests include local, domestic and global energy and environmental policy, climate change, environmental justice, and wind and water power systems.



## Daniel Zietlow

Dan Zietlow, our writing intern for the past 2 years, has graduated and is starting his career. Many thanks to Dan for his contributions!



# CENTER NEWS

## AAAS CASE Workshop Competition Reports

For the third year CSTPR organized a campus-wide competition to select two students to attend the AAAS “Catalyzing Advocacy in Science and Engineering” Workshop in Washington, D.C. Winners of the 2016 AAAS CASE workshop competition reported on their experiences at the 2016 workshop:

“Our time in D.C. was well-organized, thought-provoking, and for this future science policy-maker, a lot of fun. In three jam-packed days, we were introduced to the worlds of science for policy and policy for science, and what it means to be an effective leader in each. What do NASA and the FBI have in common? Their funding comes from the same congressional appropriations committee. What, then, is an appropriations bill? How does that differ from an allocation bill? Each session was thoughtfully designed to shape our understanding of a distinct piece of the policy puzzle. We scientists love to use long sentences with too many semi-colons and multi-syllabic words, but as the workshop taught us, politicians and their teams don’t have time to review every 30 page journal article on climate paleontology. What story can you tell about your work, and why it matters, they asked us, in three brief, yet informative bullet points? Policy is not just decisions made by our elected officials, however, as I learned from a Congressional Research Specialist at the Library Congress, who has worked on the Hill for over 40 years. She graced us with a short version of the day-long lecture she gives every freshmen class of Senators and Representatives on how Congress “really” works. She and all of the congressional staffers, university public relations lobbyists, and science policy officials with whom we met demonstrated how much policy-making depends on the thousands of behind the scenes actors working each day out of the limelight.”

Sarah Welsh-Huggins (Civil, Environmental and Architectural Engineering), 2016 competition winner

“On the Hill Visit Day we were able to get experience trying to “break through” the fray of information that members of Congress receive using messaging techniques we learned. Not only did we learn that Congressional staffers (in most cases our peers, ranging from 20-30 years old) are really the filters through which information gets to members of Congress, but we also learned the importance of storytelling in conveying effective messages. From our Hill guide Heather Bené (staff member at CU’s Office of Government Relations) we also learned the art of the long game. She had clearly developed positive relationships with staffers from Colorado’s Congressional offices and we could see how these positive relationships led to productive meetings and opportunities to chat with Legislative Directors and members of Congress themselves. The staffers also encouraged us as scientists to reach out directly as constituents; several of them commented



*AAAS Case Workshop Winners Sarah Welsh-Huggins and Angela Boag.*

that the scientific community is often less directly engaged with Congressional offices than other groups.”

Angela E. Boag (Environmental Studies), 2016 competition winner

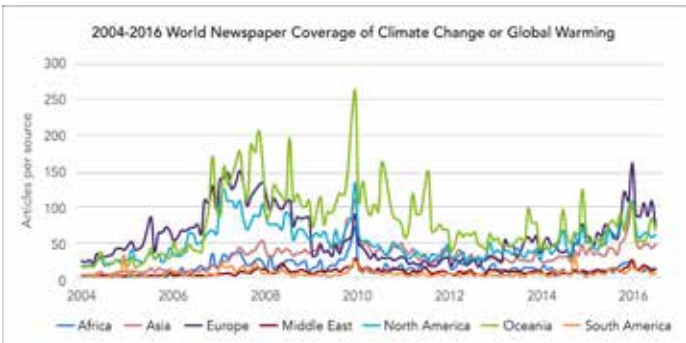
For information about the competition and workshop, as well as testimonials from past competition winners, see [http://sciencepolicy.colorado.edu/stcert/aaas\\_competition.html](http://sciencepolicy.colorado.edu/stcert/aaas_competition.html). The competition is supported by the University of Colorado Graduate School and Center for STEM Learning. We expect the next competition to be held in early 2017. Check the webpage above for information. A panel discussion with past winners of the competition will be held September 28 at noon in the CSTPR conference room (see Fall noontime seminar series below for more information).

## MECCO Awarded CARTSS Grant

The Media and Climate Change Observatory (MeCCO) project ([http://sciencepolicy.colorado.edu/icecaps/research/media\\_coverage](http://sciencepolicy.colorado.edu/icecaps/research/media_coverage)), which tracks newspaper coverage of climate change or global warming on a monthly basis, was recently awarded \$2,000 by The Center to Advance Research and Teaching in the Social Sciences (CARTSS) at the University of Colorado Boulder. The funding will support the systematic monitoring of media coverage of climate change in fifty sources across twenty-five countries around seven regions of the world. MeCCO aggregates, monitors, and appraises media representational practices that influence the spectrum of possibility for effective responses to ongoing climate challenges.



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*This figure tracks newspaper coverage of climate change or global warming in 50 newspapers across 25 countries and 6 continents. Updated through July 2016.*

Considerations of who speaks for the climate and how through variegated media communications are increasingly viewed to be as important to the long term success (or failure) of efforts to mitigate and adapt to climate change as formal science-governance architectures themselves. The project's research objectives continue to be to provide systematic monitoring of ebbs and flows of media attention to climate change over time and across geographic contexts, and to develop open-source database/archives of media coverage of climate change in order to provide a vitally important platform for a range of research endeavors to follow regarding how and why media attention shapes science-policy inquiries and endeavors. Media coverage is a critical input into politics, policy and environmental governance around the world.

## Lisa Dilling Visiting Professorship in Oxford

Lisa Dilling has been awarded a Leverhulme Visiting Professorship to be hosted by Oxford University, UK. Lisa will collaborate with Professor Steve Rayner of Oxford's Institute for Science, Innovation and Society to explore how cultural theory informs our understanding of the use of knowledge in adaptation decision making at the local level. As communities around the world begin to consider and implement adaptive strategies for climate change, climate science policy has begun to emphasize decision support and how to make information more usable in decision making. The cultural theory of risk, however, suggests that individuals hold very different world views on risk, and thus may strongly disagree on both personal and policy responses to climate change. Furthermore, studies have found that providing information can actually lead to increased polarization on an issue, and thus calls for more communication about climate science may have unintended consequences if not properly embedded into processes that are sensitive to multiple world views on risk. As part of her award Lisa will present four Leverhulme Lectures and hold a colloquia for graduate students. She will be visiting Oxford August 1, 2016 – July 31, 2017.

## New Dilling Paper Subject of Eos Article

A new paper by Christine Kirchoff and Lisa Dilling, *The role of U.S. states in facilitating effective water governance under stress and change*. *Water Resources Research*, published April 17 2016, was the subject of an article in the April 2016 edition of *Eos*: *Are U.S. States Prepared to Manage Water in a Changing Climate?* by Terri Cook. The *Eos* article concluded:



Despite the importance of incorporating climate change data into strategic long-term water planning, the results of this study show that managers in these states have not done so because of questions about the data's reliability and the politics around this issue. Instead, the states rely on historical climate data and ongoing planning to manage the uncertainties of future climate change. The authors conclude that this lack of a statewide strategy largely means local communities, large and small, must fend for themselves to understand and respond to climate change-related risks to their local water supplies; communities unable to fend for themselves may be at increasing risk with respect to their water resources.

## MULTIMEDIA HIGHLIGHT



## More Than Scientists Campaign

### Let's Not Treat This as a Big Fight by Lisa Dilling

Will our kids get to see the beauty of our planet? As someone who's always loved the amazing beauty she sees around her, especially within the oceans, Prof. Lisa Dilling of CU Boulder has dedicated herself to caring for it. And she asks, let's not treat climate change as a big fight. Let's look for opportunities to speak across world views and look for common ground. Lisa's video was produced by Inside the Greenhouse in collaboration with More Than Scientists.

Video [3:31]: <http://morethanscientists.org/#/video/1154>

To view more CSTPR videos see:

<http://sciencepolicy.colorado.edu/news/multimedia>

# CENTER NEWS

Photo: Sierra Gladfelter.



## Red Cross Red Crescent Climate Centre Summer Internship

CSTPR and CU Boulder partner with the Red Cross Red Crescent Climate Centre (RCRCCC) to place graduate students in locations in eastern and southern Africa each summer. This summer, Sierra Gladfelter, a Masters student in geography, interned in Zambia from June through August and has written six blog posts from the field.



CSTPR director Max Boykoff describes Sierra's internship as follows:

In Zambia, Sierra supported the monitoring and evaluation component of the 'City Learning Lab processes' Zambia Red Cross Society program. This included supporting the facilitation and documentation of the First Lusaka Learning Lab for the Future Resilience for African Cities and Lands

(FRACTAL) project, including contribution to the development of a learning framework and establishing a learning baseline, researching background materials and preparing reading materials in collaboration with the FRACTAL team and documenting learning during the Learning Lab interactions and compiling a learning report. In addition, Sierra supported ongoing field work activities of the Zambia Red Cross Society as well as contributed to the sharing of concepts for the 'Forecast Based Finance' project, compiled existing materials on forecast based finance, and developed a participatory training course to illustrate the principles of Forecast Based Finance.

All of Sierra's blog posts as well as photos she has taken in the field can be found here: <http://sciencepolicy.colorado.edu/students/redcross/gladfelter>.

To learn more about the program, go to the Red Cross Red Crescent Climate Centre Program website: <http://sciencepolicy.colorado.edu/students/redcross>.

## IN THE NEWS

CSTPR staff were quoted or referred to by the media as follows:

**Max Boykoff** was quoted in a 5 July 2016 *ClimateWire* article on climate change: It isn't easy being green -- Just ask those who are by Gayathri Vaidyanathan and Brittany Patterson.

**Max Boykoff** was quoted in a 13 June 2016 *Reuters Westlaw* article on climate change proposal of Devon Energy Corp: The latest climate change doubters: Shareholders by Amy Lee Rosen.

**Max Boykoff** was quoted in an 18 May 2016 *Washington Post* article on climate change: Climate change doubters really aren't going to like this study by Chelsea Harvey.

**Lisa Dilling** was quoted in a 28 April 2016 *Daily Camera* article on City of Boulder's Resiliency Strategy: Boulder releases draft on 'resiliency' plan to bolster preparedness by Charlie Brennan.

**Max Boykoff** was quoted in a 19 April 2016 *Desert Sun* article on climate change: Most Americans say climate changing, humans to blame by Sammy Roth.

**Max Boykoff's** MeCCO work was highlighted in a 7 March 2016 *Climate Home* article on climate press coverage: Why did Paris climate summit get less press coverage than Copenhagen? by Alex Pashley

For more information see the In the News webpage: <http://sciencepolicy.colorado.edu/news/in-the-news.html>

# CENTER PUBLICATIONS

(Center personnel highlighted)

## Public Information and Regulatory Processes: What the Public Knows and Regulators Decide

by D.A Crow, E. A. Albright, and E. Koebele (2016)  
*Review of Policy Research*, Vol. 33, No. 1, pp. 90-109

Abstract: Because bureaucratic agencies may be less transparent in their decision processes than legislatures, most states have developed processes to incorporate input from regulated communities and other parties potentially affected by regulations. Administrative agencies may encourage democratic practices to increase legitimacy and accountability of the bureaucracy and improve decision-making processes.

However, rules governing the regulatory process vary by state, with some incorporating more open practices than others. Understanding these dynamics is increasingly important, as the rulemaking process has become central to policymaking over the past several decades, with a large portion of policymaking authority delegated to administrative agencies. Drawing from regulatory documents, rulemaking comments, media coverage, and interviews with regulators in 14 regulatory decision processes across five states, this study finds that while states vary in their approach to providing access to information, there are overriding patterns that reduce the role of citizens and the overall transparency of regulatory processes. Read more: [http://sciencepolicy.colorado.edu/admin/publication\\_files/2016.07.pdf](http://sciencepolicy.colorado.edu/admin/publication_files/2016.07.pdf)



## Willingness to Pay for Mosquito Control in Key West, Florida and Tucson, Arizona

by K.L. Dickinson, M.H. Hayden, S. Haenchen, A.J. Monaghan, K.R. Walker and K.C. Ernst (2016)  
*American Journal of Tropical Medicine and Hygiene*, Vol. 94, No. 4, pp. 775-779

Abstract: Mosquito-borne illnesses like West Nile virus (WNV) and dengue are growing threats to the United States. Proactive mosquito control is one strategy to reduce the risk of disease transmission. In 2012, we measured the public's willingness to pay (WTP) for increased mosquito control in two cities: Key West, FL, where there have been recent dengue outbreaks, and Tucson, AZ, where dengue vectors are established and WNV has been circulating for over a decade.



Nearly three quarters of respondents in both cities (74% in Tucson and 73% in Key West) would be willing to pay \$25 or more annually toward an increase in publicly funded mosquito control efforts. WTP was positively associated with income (both cities), education (Key West), and perceived mosquito abundance (Tucson). Concerns about environmental impacts of mosquito control were associated with lower WTP in Key West. Expanded mosquito control efforts should incorporate public opinion as they respond to evolving disease risks. Read more: [http://sciencepolicy.colorado.edu/admin/publication\\_files/2016.10.pdf](http://sciencepolicy.colorado.edu/admin/publication_files/2016.10.pdf)

## Managing Carbon on Federal Public Lands: Opportunities and Challenges in Southwestern Colorado

by L. Dilling, K. C. Kelsey, D.P. Fernandez, Y.D. Huang, J.B. Milford and J.C. Neff (2016), *Environmental Management*

Abstract: Federal lands in the United States have been identified as important areas where forests could be managed to enhance carbon storage and help mitigate climate change. However, there has been little work examining the context for decision making for carbon in a multiple-use public land environment, and how science can support decision making. This case study of the San Juan National Forest and the Bureau of Land Management Tres Rios Field Office in southwestern Colorado examines whether land managers in these offices have adequate tools, information, and management flexibility to practice effective carbon stewardship. To understand how carbon was distributed on the management landscape we added a newly developed carbon map for the SJNF-TRFO area based on Landsat TM texture information (Kelsey and Neff in *Remote Sens* 6:6407-6422. doi:10.3390/rs6076407, 2014). We estimate that only about 22% of the aboveground carbon in the SJNF-TRFO is in areas designated for active management, whereas about 38% is in areas with limited management opportunities, and 29% is in areas where natural processes should dominate. To project the effects of forest management actions on carbon storage, staff of the SJNF are expected to use the Forest Vegetation Simulator (FVS) and extensions. While identifying FVS as the best tool generally available for this purpose, the users and developers we interviewed highlighted the limitations of applying an empirically based model over long time horizons. Future research to improve information on carbon storage should focus on locations and types of vegetation where carbon management is feasible and aligns with other management priorities. Read more: [http://sciencepolicy.colorado.edu/admin/publication\\_files/2016.14.pdf](http://sciencepolicy.colorado.edu/admin/publication_files/2016.14.pdf)



# CENTER PUBLICATIONS

## The Role of U.S. States in Facilitating Effective Water Governance Under Stress and Change

by C. Kirchhoff and L. Dilling (2016)  
*Water Resources Research*

**Abstract:** Worldwide water governance failures undermine effective water management under uncertainty and change. Overcoming these failures requires employing more adaptive, resilient water management approaches; yet, while scholars have advanced theory of what adaptive, resilient approaches should be, there is little empirical evidence to support those normative propositions. To fill this gap, we reviewed the literature to derive theorized characteristics of adaptive, resilient water governance including knowledge generation and use, participation, clear rules for water use, and incorporating nonstationarity. Then, using interviews and documentary analysis focused on five U.S. states' allocation and planning approaches, we examined empirically if embodying these characteristics made states more (or less) adaptive and resilient in practice. We found that adaptive, resilient water governance requires not just possessing these characteristics but combining and building on them. That is, adaptive, resilient water governance requires well-funded, transparent knowledge systems combined with broad, multilevel participatory processes that support learning, strong institutional arrangements that establish authorities and rules and that allow flexibility as conditions change, and resources for integrated planning and allocation. We also found that difficulty incorporating climate change or altering existing water governance paradigms and inadequate funding of water programs undermine adaptive, resilient governance. Read more: [http://sciencepolicy.colorado.edu/admin/publication\\_files/2016.11.pdf](http://sciencepolicy.colorado.edu/admin/publication_files/2016.11.pdf)



to cause climate change. The 'problem' of climate change is both an issue of harmful impacts and a question of wrongdoing. While certain deleterious effects of climate change are unavoidable, philosophy offers solutions to moral problems that are not contingent on successful mitigation or adaptation. In light of this distinction, Thom Brooks' criticism that philosophers have 'misunderstood' the climate change problem as a problem that is solvable (Brooks, forthcoming) arises from a conflation of the two climate change problems and not from a shortcoming of philosophy in the climate conversation. Climate harms may not be easily addressed, but righting wrongs is a separate matter. Read more: <http://www.tandfonline.com/doi/full/10.1080/21550085.2016.1195559>



## Two Problems of Climate Ethics: Can we Lose the Planet but Save Ourselves?

by A. Lee and J. Kincaid (2016)  
*Ethics, Policy & Environment*

**Excerpt:** Climate change presents unprecedented challenges for the ethical community and society at large. The harms of climate change—real and projected—are well documented (Pachauri et al., 2015). Rising sea levels, increased drought, warming temperatures and other impacts of climate change will devastate vulnerable communities, the global economy, and the natural world unless difficult choices, behavioral changes, and major policy shifts are made. But the problem we must address is not just the amalgam of climate harms. Climate change also presents a multifaceted problem of moral wrongdoing consisting of the actions that caused or coalesced

## PUBLICATION HIGHLIGHT

### *Adapting Livelihoods to Floods and Droughts in Arid Kenya: Local Perspectives and Insights*

by 2013 Red Cross/Red Crescent Climate Centre Intern, Amy Quandt

Adaptation of rural livelihoods to climate change hazards such as floods and droughts is critical. However, policy has focused on large scale adaptation policies that often ignore local knowledge. In this paper, we explore local perceptions and insights about viable livelihood adaptation strategies in arid Isiolo County, Kenya. Research included 270 household surveys and 6 focus group discussions in 7 communities. Results indicate that the three livelihoods that communities saw as being a viable option for themselves in the context of future climate change included camel keeping, business, and modern agriculture. Camels were cited as being resilient to drought. Business was seen as an option less impacted by floods and droughts than other livelihood options, and modern agriculture could improve food security and income. These local insights should be included in climate change adaptation policy in order to sustain, and even improve, the livelihoods of vulnerable communities in the future. Read more: [http://sciencepolicy.colorado.edu/admin/publication\\_files/2016.09.pdf](http://sciencepolicy.colorado.edu/admin/publication_files/2016.09.pdf)



# CENTER TALKS AND EVENTS

## Fall Noontime Seminar Series

The Noontime Seminar Series is held in the CSTPR Conference Room, located at 1333 Grandview Avenue, one street north of University Avenue on the CU Boulder campus. All talks are free and open to the public and usually are available via webcast at <http://sciencepolicy.colorado.edu/news/webinars>.



**September 7 at 12:00 PM**  
***Collaborating for System Change: Learning Networks for City Resilience, Wildfire Protection, Climate Adaptation, and Impactful Science***  
by Bruce Goldstein and the Collaborative Learning Networks



**September 28 at 12:00 PM**  
***AAAS "Catalyzing Advocacy in Science and Engineering" Workshop Student Competition Panel Discussion***  
Angela Boag, CU Boulder Environmental Studies

Nicholas Valcourt, CU Boulder Civil Systems Engineering  
Sarah Welsh-Huggins, CU Boulder Civil, Architectural, and Environmental Engineering  
Abby Benson (moderator), CU Aerospace Ventures



**October 12 at 12:00 PM**  
***EU Space Policy***  
by Augusto González, Policy and Space Research, European Commission



**October 19 at 12:00 PM**  
***Student Expertise and the Legislative Process***  
Jeffrey Zax, CU Boulder, Department of Economics



**October 26 at 12:00 PM**  
***Collaboration in Energy and Materials Sustainability***  
by Alan Hurd, Los Alamos National Laboratory



**November 30 at 12:00 PM**  
***What's in a Research Thumbprint? Comparing Research Agendas Across Disciplines***  
by Elizabeth McNie, Western Water Assessment, CU Boulder

To receive notifications of upcoming CSTPR talks enter your email address in the "Join Our Mailing List" box on the upper left corner of our home page: <http://sciencepolicy.colorado.edu>.

## Fall ENVS Colloquium Talks by CSTPR Visitors

All talks will be held at Sustainability, Energy and Environment Complex (SEEC N124) unless otherwise noted.



**September 23 at 1:00 PM**  
***Emerging Technologies as Collective Experiments***  
SEEC N124, 4001 Discovery Drive, Boulder  
Jack Stilgoe, University College London  
Department of Science and Technology  
Studies (CSTPR Visiting Scholar)



**November 4 at 1:00 PM**  
***Title TBA***  
SEEC N124, 4001 Discovery Drive, Boulder  
Justin Farrell, Yale University Department of  
Sociology (CSTPR Visiting Scholar)

## Job Opportunities

Please see the Center's Jobs Page to learn about available opportunities in the S&T field:

<http://sciencepolicy.colorado.edu/students/jobs>

Recent postings include:

CIRES/NOAA Western Water Assessment, Climate Assessment Specialist (posted 8/16/16)

Union of Concerned Scientists, Program Assistant (posted 8/2/16)

University of Wisconsin, Director of Arboretum (posted 7/12/16)



## ABOUT US

Ogmios is the newsletter of the Center for Science and Technology Policy Research. The Center is within the Cooperative Institute for Research in Environmental Sciences (CIRES) at the University of Colorado-Boulder. The mission of CIRES, which was established in 1967, is to act as a national resource for multidisciplinary research and education in the environmental sciences. CIRES is jointly sponsored by the University of Colorado-Boulder and the National Oceanic and Atmospheric Administration.



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