Achieving global environmental sustainability – which can be defined as maintaining the Earth’s environmental quality, functionality, and services over the long-term while meeting the human needs of today and tomorrow – is one of the greatest global challenges of the coming century.

The School of Global Environmental Sustainability (SoGES) was created by Colorado State University (CSU) to address this challenge. SoGES is a Special Academic Unit attached to the Office of the Provost and Executive Vice President. SoGES connects all eight colleges at the University by providing a structure for sustainability research, education, and engagement. The School is in a distinctive position to draw upon the intellectual and innovative strengths across all of CSU to promote comprehensive, collaborative, and interdisciplinary approaches to the pressing issues that span sustainability today.

The School supports faculty in development of new research and curricula, mentors early career scientists, teaches students, and enables deeper connections across disciplinary and institutional boundaries. SoGES fosters ongoing dialogue about sustainability issues with a multitude of stakeholders from the academic, public, and private sectors. The School builds on CSU’s history of leadership in environmental science and education by integrating sustainability studies with the sciences, humanities, arts, and business.

Complex and multi-faceted issues require creative management and problem solving informed by interdisciplinary understanding. SoGES advances global environmental sustainability knowledge by exploring, documenting, and teaching about the links between environmental, societal, and economic aspects of sustainability. These relationships must be addressed to effectively tackle the sustainability challenges of the 21st century, such as minimizing biodiversity loss, providing solutions to the impacts of climate change, and improving food security and social equity while meeting the needs of a human population that is projected to reach nine billion people by mid-century.

**Vision**

A world that is environmentally healthy, socially equitable, and economically vibrant.

**Research Areas**

To strategically address CSU’s sustainability strengths, the School’s research is organized into six subject areas: Climate Change and Energy; Food Security; Environmental Institutions and Governance; Sustainable Communities; Land and Water Resources; and Biodiversity, Conservation, and Management.

---

### Mission

- Conduct innovative research that leads to new and deeper understanding of sustainability issues
- Provide a challenging, integrative, and provocative education that gives our students knowledge and tools that enable them to contribute to environmental sustainability
- Engage with the public, decision-makers, and other stakeholders to translate discoveries into useful information and practical solutions to pressing environmental problems
RESEARCH applying intellectual creativity to sustainability grand challenges

**TO DATE:**

- **33** interdisciplinary faculty research teams
- **20** faculty fellows
  - from **38** departments/units across **8 colleges**
  - **$10,858,263** funding obtained by PIs from external sponsors
  - **50+** scholarly articles, books, and book chapters published

- **100** Ph.D. student and postdoctoral research fellows
  - from **28** departments across **7 colleges**

- **14** visiting international scholars hosted
  - from **9** countries

**FY 2015-16:**

- **7 Global Challenges Research Teams** ........................................ pg. 8-11
  - $69,000 awarded by SoGES
  - 29 faculty principal investigators from 14 departments across 7 colleges
  - 2 manuscripts published, more in development
  - $35,000 in grants from other sponsors
  - 27 outreach events held
  - Cross-campus networks and research partnerships established

- **3 Resident Fellows** ................................................................. pg. 12
  - $17,100 awarded by SoGES
  - 2 manuscripts published, more in development
  - 4 events held
  - 2 new courses developed

- **5 Visiting Fellows** ................................................................. pg. 13
  - 1 from Nigeria, 4 from U.S.
  - New scientific partnerships established

- **5th cohort of Sustainability Leadership Fellows** ...................... pg. 14-15
  - 20 Fellows from 14 departments/units across 7 colleges
  - 20 guest SoGES blog posts published
  - Radio show created

- **5 centers, international initiatives, and working groups**
  - Global Biodiversity Center .................................................. pg. 16
  - The Africa Center ............................................................... pg. 16
  - Future Earth* ................................................................. pg. 17
    * externally funded
  - Conservation Development ............................................... pg. 17
  - Global Soil Biodiversity Initiative .................................... pg. 18
TO DATE:

**EDUCATION**

- CSU graduates hold a minor in Global Environmental Sustainability: 224
- Sustainability courses developed: 9
- Students completed GES 101: 1,979
- Students completed GES 470: 277
- Courses across 7 colleges endorsed for sustainability content: 57

**ENGAGEMENT**

- Email list subscribers: 3,056
- Facebook likes: 1,300
- Twitter followers: 1,823
- Continually increasing reach through events and activities

**FY 2015-16:**

- 67 students graduated with GES minor
- 259 students currently enrolled in GES minor from 46 different majors across all 8 colleges
- 306 students completed GES 101
- 67 students completed GES 470
- 1 new sustainability course developed
- 2 experimental courses made permanent
- 4 new graduate certificates developed

**TO DATE:**

- CSU graduates hold a minor in Global Environmental Sustainability: 224
- Sustainability courses developed: 9
- Students completed GES 101: 1,979
- Students completed GES 470: 277
- Courses across 7 colleges endorsed for sustainability content: 57

**FY 2015-16:**

- 104 faculty members representing 36 departments and units across all 8 colleges
- 6 Dining with Sustainability dinners* 
  * externally funded
- 9 events and displays held by the Student Sustainability Center
- 6.4% increase in website visitors
- 239 external sustainability-related meetings held in SoGES conference rooms
- 72 hosted and co-hosted events
External Advisory Board

Osvaldo Sala (chair)
Julie A. Wrigley Professor at Arizona State University

Joyce Berry
Former Dean of the Warner College of Natural Resources, Colorado State University

Thomas Dietz
Professor of Sociology and Environmental Science and Policy and Assistant Vice President for Environmental Research at Michigan State University

Maggie L. Fox
Past President and CEO of The Climate Reality Project

Rob Jackson
Michelle and Kevin Douglas Provostial Professor and Senior Fellow at the Woods Institute for the Environment and at the Precourt Institute for Energy at Stanford University

Kim Jordan
Co-founder and past CEO of New Belgium Brewing Company

Thomas E. Lovejoy
Senior Fellow at the United Nations Foundation and University Professor in the Department of Environmental Science and Policy at George Mason University

W. Berry Lyons
Professor and Director of the School of Earth Sciences at Ohio State University

James B. Martin
Senior counsel Beatty & Wozniak, P.C., Denver, Colorado

Jonathan Patz
Professor and Director of the Global Health Institute at the University of Wisconsin
LEADERSHIP

Diana H. Wall, Director
Diana is a University Distinguished Professor, a Professor of Biology, and Senior Research Scientist in the Natural Resource Ecology Laboratory at Colorado State University. She is actively engaged in research on sustaining soils and has spent 27 seasons in the Antarctic McMurdo Dry Valleys examining how global changes impact soil biodiversity, ecosystem processes, and ecosystem services. Diana is the 2013 recipient of the Tyler Prize for Environmental Achievement, a member of the American Academy of Arts and Sciences, and was inducted into the 2014 Colorado Women’s Hall of Fame. Diana is the chair of the Scientific Advisory Committee of the Global Soil Biodiversity Initiative, was chair of the Council of Scientific Society Presidents, and past president of the Ecological Society of America and the American Institute of Biological Sciences. She holds an Honorary Doctorate from Utrecht University and received a B.A. and Ph.D. from the University of Kentucky, Lexington.

Peter W. Backlund, Associate Director
Peter Backlund joined SoGES as Associate Director in September 2014. He was previously Director of the Integrated Science Program and Director of External Relations at the National Center for Atmospheric Research, and before that held senior positions at the White House Office of Science and Technology Policy, and the National Aeronautics and Space Administration. Peter’s interests include the relationship of human activities and environmental changes; the integration of social science and natural science; assessment of climate change vulnerability, risks, and response strategies; use of scientific research in decision-making and public policy; and improving the communication of scientific information to non-technical audiences. He has helped lead scientific assessments of the effects of climate change on land resources, water resources, biodiversity, agriculture, and global food security. Peter is a fellow of the American Association for the Advancement of Science and received his B.A. from the University of New Mexico and his M.A. from George Washington University.

Kathleen Galvin, Assistant Director of Education
Kathy Galvin is Professor of Anthropology, Senior Research Scientist at the Natural Resource Ecology Laboratory, Head of the Africa Center at CSU, and SoGES Assistant Director of Education. She is also an advising faculty member in the Graduate Degree Program in Ecology. Trained as a biological anthropologist, she has conducted interdisciplinary human-ecological research in east and southern Africa and central and East Asia. She is interested in issues of pastoral land use, conservation, climate variability, resilience, and adaptation strategies of people in drylands, and household decision-making under environmental uncertainty. Kathy has served on multiple National Research Council and National Science Foundation panels. She was an Aldo Leopold Leadership Fellow, and received her B.A. and M.A. from CSU and her Ph.D. from Binghamton University.

Eugene Kelly, Assistant Director of Research and Development
Gene Kelly will assume the role of Deputy Director of the Agricultural Experiment Station and Associate Dean for Extension in the College of Agricultural Science in October 2016. He is a professor of pedology, has served as the head of the Department of Soil and Crop Sciences, and as the SoGES Assistant Director of Research and Development since 2009. Gene’s scientific specialization is in pedology and geochemistry and his current research centers on the influence of climate change and land use on soil degradation and sustainability in water limited systems. He serves as an advisor to the United States Department of Agriculture with the National Cooperative Soil Survey and is a fellow of the Soil Science Society of America. He received his B.S. and M.S. degrees from CSU and his Ph.D. from the University of California-Berkeley.

Centers and Projects Leadership

Chris Funk
Director of Global Biodiversity Center

Kathleen Galvin
Director of The Africa Center

Josh Tewksbury
Director of the Future Earth Colorado Global Hub
<table>
<thead>
<tr>
<th>Faculty Name</th>
<th>Department/Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ruth Alexander</td>
<td>History</td>
</tr>
<tr>
<td>Peter Backlund</td>
<td>School of Global Environmental Sustainability</td>
</tr>
<tr>
<td>Ken Barbarick</td>
<td>Soil and Crop Sciences</td>
</tr>
<tr>
<td>Jennifer Barfield</td>
<td>Veterinary and Biomedical Sciences</td>
</tr>
<tr>
<td>Jill Baron</td>
<td>Ecosystem Science and Sustainability</td>
</tr>
<tr>
<td>Dan Beachy-Quick</td>
<td>English</td>
</tr>
<tr>
<td>Del Benson</td>
<td>Fish, Wildlife, and Conservation Biology</td>
</tr>
<tr>
<td>Michele Betsill</td>
<td>Political Science</td>
</tr>
<tr>
<td>Jens Biotegovil</td>
<td>Civil and Environmental Engineering</td>
</tr>
<tr>
<td>Thomas Borch</td>
<td>Soil and Crop Sciences</td>
</tr>
<tr>
<td>Cynthia Brown</td>
<td>Biocultural Sciences and Pest Management</td>
</tr>
<tr>
<td>Daniel Bush</td>
<td>Biology</td>
</tr>
<tr>
<td>Phil Cafaro</td>
<td>Philosophy</td>
</tr>
<tr>
<td>Sue Ellen Campbell</td>
<td>English</td>
</tr>
<tr>
<td>Martin Carcasson</td>
<td>Communication Studies</td>
</tr>
<tr>
<td>Michael Carolan</td>
<td>Sociology</td>
</tr>
<tr>
<td>Joseph Champ</td>
<td>Journalism and Media Communication</td>
</tr>
<tr>
<td>Suren Chen</td>
<td>Civil and Environmental Engineering</td>
</tr>
<tr>
<td>Tony Cheng</td>
<td>Forest and Rangeland Stewardship</td>
</tr>
<tr>
<td>Jane Choi</td>
<td>Horticulture and Landscape Architecture</td>
</tr>
<tr>
<td>Stephanie Clemons</td>
<td>Design and Merchandising</td>
</tr>
<tr>
<td>Rich Conant</td>
<td>Ecosystem Science and Sustainability</td>
</tr>
<tr>
<td>Daniel Cooley</td>
<td>Statistics</td>
</tr>
<tr>
<td>M. Francesca Cotrufo</td>
<td>Soil and Crop Sciences</td>
</tr>
<tr>
<td>Kevin Crooks</td>
<td>Fish, Wildlife, and Conservation Biology</td>
</tr>
<tr>
<td>Charles Davis</td>
<td>Political Science</td>
</tr>
<tr>
<td>Sandra Davis</td>
<td>Political Science</td>
</tr>
<tr>
<td>Tom Dean</td>
<td>Management</td>
</tr>
<tr>
<td>Scott Denning</td>
<td>Atmospheric Sciences</td>
</tr>
<tr>
<td>Robert Duffy</td>
<td>Political Science</td>
</tr>
<tr>
<td>Brian Dunbar</td>
<td>Institute for the Built Environment</td>
</tr>
<tr>
<td>Maria</td>
<td>Forest and Rangeland Stewardship</td>
</tr>
<tr>
<td>Fernández-Giménez</td>
<td>Sociology</td>
</tr>
<tr>
<td>Emily Fischer</td>
<td>Atmospheric Sciences</td>
</tr>
<tr>
<td>Brian Foy</td>
<td>Microbiology, Immunology, and Pathology</td>
</tr>
<tr>
<td>Chris Funk</td>
<td>Biology</td>
</tr>
<tr>
<td>Kathleen Galvin</td>
<td>Anthropology</td>
</tr>
<tr>
<td>Cameron Ghalambor</td>
<td>Biology</td>
</tr>
<tr>
<td>Scott Glick</td>
<td>Construction Management</td>
</tr>
<tr>
<td>Susan Golicic</td>
<td>Management</td>
</tr>
<tr>
<td>Neil Grigg</td>
<td>Civil and Environmental Engineering</td>
</tr>
<tr>
<td>Peter Hall</td>
<td>Sociology</td>
</tr>
<tr>
<td>Elizabeth Hobbs</td>
<td>Horticulture and Landscape Architecture</td>
</tr>
<tr>
<td>Thomas Holtzer</td>
<td>Biocultural Sciences and Pest Management</td>
</tr>
<tr>
<td>Amy Hoseth</td>
<td>Library</td>
</tr>
<tr>
<td>Adrian Howkins</td>
<td>History</td>
</tr>
<tr>
<td>Paul Hudnut</td>
<td>Management</td>
</tr>
<tr>
<td>Ruth Hufbauer</td>
<td>Biocultural Sciences and Pest Management</td>
</tr>
<tr>
<td>Nancy Irlbeck</td>
<td>Agricultural Sciences</td>
</tr>
<tr>
<td>Gene Kelly</td>
<td>Soil and Crop Sciences</td>
</tr>
<tr>
<td>Raj Khosla</td>
<td>Soil and Crop Sciences</td>
</tr>
<tr>
<td>Julia Klein</td>
<td>Ecosystem Science and Sustainability</td>
</tr>
<tr>
<td>Alan Knapp</td>
<td>Biology</td>
</tr>
<tr>
<td>Mary-Ann Kokoska</td>
<td>Art</td>
</tr>
<tr>
<td>Boris Kondratieff</td>
<td>Biocultural Sciences and Pest Management</td>
</tr>
<tr>
<td>Stephan Kroll</td>
<td>Agricultural and Resource Economics</td>
</tr>
<tr>
<td>Melinda Laituri</td>
<td>Ecosystem Science and Sustainability</td>
</tr>
<tr>
<td>Jan Leach</td>
<td>Agricultural Sciences and Pest Management</td>
</tr>
<tr>
<td>Katherine Leigh</td>
<td>Design and Merchandising</td>
</tr>
<tr>
<td>Dale Lockwood</td>
<td>School of Global Environmental Sustainability</td>
</tr>
<tr>
<td>Stephanie Malin</td>
<td>Sociology</td>
</tr>
<tr>
<td>Anthony Marchese</td>
<td>Mechanical Engineering</td>
</tr>
<tr>
<td>Katie McShane</td>
<td>Philosophy</td>
</tr>
<tr>
<td>Suellen Melzer</td>
<td>Soil and Crop Sciences</td>
</tr>
<tr>
<td>Donald Mykles</td>
<td>University Honors Program</td>
</tr>
<tr>
<td>Barry Noon</td>
<td>Fish, Wildlife, and Conservation Biology</td>
</tr>
<tr>
<td>Troy Ocheltree</td>
<td>Forest and Rangeland Stewardship</td>
</tr>
<tr>
<td>Paul Ode</td>
<td>Biocultural Sciences and Pest Management</td>
</tr>
<tr>
<td>Dennis Ojima</td>
<td>Ecosystem Science and Sustainability</td>
</tr>
<tr>
<td>Erika Osborne</td>
<td>Art</td>
</tr>
<tr>
<td>Mehmet Ozbek</td>
<td>Construction Management</td>
</tr>
<tr>
<td>Merlyn Paulson</td>
<td>Horticulture and Landscape Architecture</td>
</tr>
<tr>
<td>Keith Paustian</td>
<td>Soil and Crop Sciences</td>
</tr>
<tr>
<td>Lori Peek</td>
<td>Sociology</td>
</tr>
<tr>
<td>Jennifer Peel</td>
<td>Environmental and Radiological Health Sciences</td>
</tr>
<tr>
<td>Liba Pejchar</td>
<td>Fish, Wildlife, and Conservation Biology</td>
</tr>
<tr>
<td>LeRoy Poff</td>
<td>Biology</td>
</tr>
<tr>
<td>Jorge Ramirez</td>
<td>Civil and Environmental Engineering</td>
</tr>
<tr>
<td>Howard Ramsdell</td>
<td>Environmental and Radiological Health Sciences</td>
</tr>
<tr>
<td>Dave Randall</td>
<td>Atmospheric Science</td>
</tr>
<tr>
<td>Tony Rappe</td>
<td>Chemistry</td>
</tr>
<tr>
<td>Ravi Ravishankara</td>
<td>Chemistry</td>
</tr>
<tr>
<td>Laura Raynolds</td>
<td>Sociology</td>
</tr>
<tr>
<td>Ken Reardon</td>
<td>Chemical and Biological Engineering</td>
</tr>
<tr>
<td>Sarah Reed</td>
<td>Fish, Wildlife, and Conservation Biology</td>
</tr>
<tr>
<td>Kyle Saunders</td>
<td>Political Science</td>
</tr>
<tr>
<td>Meagan Schipanski</td>
<td>Soil and Crop Sciences</td>
</tr>
<tr>
<td>Andy Seidl</td>
<td>Agricultural and Resource Economics</td>
</tr>
<tr>
<td>Arathi Seshadri</td>
<td>Soil and Crop Sciences</td>
</tr>
<tr>
<td>Sybil Sharvelle</td>
<td>Civil and Environmental Engineering</td>
</tr>
<tr>
<td>Melinda Smith</td>
<td>Biology</td>
</tr>
<tr>
<td>Dimitris Stevis</td>
<td>Political Science</td>
</tr>
<tr>
<td>Peter Taylor</td>
<td>Sociology</td>
</tr>
<tr>
<td>Dawn Thilmany</td>
<td>Agricultural and Resource Economics</td>
</tr>
<tr>
<td>McFadden</td>
<td></td>
</tr>
<tr>
<td>David Thompson</td>
<td>Atmospheric Sciences</td>
</tr>
<tr>
<td>Bill Timpson</td>
<td>School of Education</td>
</tr>
<tr>
<td>Craig Trumbo</td>
<td>Journalism and Media Communication</td>
</tr>
<tr>
<td>Rodolfo</td>
<td>Construction Management</td>
</tr>
<tr>
<td>Valdes-Vasquez</td>
<td></td>
</tr>
<tr>
<td>Sue VandeWoude</td>
<td>Microbiology, Immunology, and Pathology</td>
</tr>
<tr>
<td>Subhas</td>
<td>Civil and Environmental Engineering</td>
</tr>
<tr>
<td>Venyagamoorthy</td>
<td></td>
</tr>
<tr>
<td>Chandrasekar</td>
<td>Electrical and Computer Engineering</td>
</tr>
<tr>
<td>Venkatachalam</td>
<td></td>
</tr>
<tr>
<td>Diana Wall</td>
<td>School of Global Environmental Sustainability</td>
</tr>
<tr>
<td>Ellen Wohl</td>
<td>Geosciences</td>
</tr>
</tbody>
</table>
The School invests in innovative research activities to advance global sustainability science, including cultivation of interdisciplinary partnerships, experimentation with new methods, and development of projects that integrate disparate knowledge and approaches.
Global Challenges Research Teams (GCRT)
Collaborative teams of faculty that build cross-campus partnerships to address the world’s most pressing regional and global environmental issues. The program provides seed funding to foster creative and innovative approaches to sustainability grand challenges and establish interdisciplinary relationships to conduct research in new areas and with expanded applicability.

$69k awarded 7 GCRTs 29 principal investigators from 14 departments and 7 colleges

Hydraulic Fracturing
Studying the potential groundwater and human health impacts of surface spills containing chemicals used for unconventional oil and gas exploration.

Award: $12,000

Principal Investigators:
Thomas Borch, Department of Soil and Crop Sciences
Yury Desyaterik, Department of Atmospheric Sciences
Jens Blotevogel, Department of Civil and Environmental Engineering
William Hanneman, Department of Environmental and Radiological Health Sciences

Research Areas: Sustainable Communities; Land and Water Resources

The state of Colorado has seen a significant increase in oil and gas development in recent years, and the vast majority of new wells are developed using hydraulic fracturing. There is growing concern about the potential impact that hydraulic fracturing may have on human health, soil, and groundwater quality, amplified by the fact that the environmental and human health risks associated with the chemicals used in fracturing fluids are largely unknown. The total volume of chemicals used per well is substantial and very little is known about the environmental fate and transport of these chemicals into soils and groundwater in the case of accidental spills and catastrophic events.

In FY 2015-16, the Hydraulic Fracturing research team studied the impact of surface spills containing fracking chemicals on agricultural topsoil in Weld County, Colorado. This was the first study in the United States to investigate the potential impacts on soil quality by chemicals used for unconventional oil and gas exploration. The team focused on three widely used fracking chemicals to assess not only how they broke down in the environment, but also how their breakdown was affected by interactions with other chemicals used in the hydraulic fracturing process, as well as salt, which is commonly present in large concentrations. The team found that while some chemicals were able to biodegrade over time in isolation, their breakdown was slower and in some cases impeded completely when mixed with the other fracking chemicals and/or salt, thus having a potentially larger impact on soil and water toxicity. Additionally, they found that there was increased potential for chemicals to not only remain present in the environment for a longer amount of time, but also for those chemicals to spread over larger distances and be available for crop uptake. Their research suggests that the environmental and human health risks of hydraulic fracturing must be considered not only by the existing information for individual chemicals, but also the interactions of all chemicals used; and that the soil and water contamination from fracking fluids may be greater than we currently estimate based on a single-compound basis.

The Hydraulic Fracturing research team published their results in Environmental Science & Technology and began pursuing additional funding support to continue their work.
Food Systems
Facilitating systems-based research to address the challenge of improving global food accessibility while reducing agriculture's environmental impacts.

**Award:** $10,000  
**Principal Investigators:**  
Meagan Schipanski, Department of Soil and Crop Sciences  
Arathi Seshadri, Department of Soil and Crop Sciences  
Cynthia Brown, Department of Bioagricultural Sciences and Pest Management  
Michael Carolan, Department of Sociology  
Robert Duffy, Department of Political Science  
Theresa Nogeire, Department of Soil and Crop Sciences

**Research Areas:** Climate Change and Energy; Food Security; Sustainable Communities; Land and Water Resources; Biodiversity, Conservation and Management

Agriculture faces enormous challenges including providing sufficient, nutritious food to a growing population under global change without diminishing already stressed natural resources. In order to address the cumulative pressures on modern food systems, it is necessary to move beyond a singular focus on increasing production to include interdisciplinary research that places food production within its broader context of social, ecological, and economic systems.

The Food Systems research team brought together highly diverse researchers from across campus to take a holistic food systems approach to addressing the challenge of achieving global food security and reducing agriculture's impact on the environment. In particular, they addressed how the spatial arrangement (local, regional, national, global) of different food system components influences key social, ecological, and economic indicators of sustainability. Their primary goals were to 1) connect existing CSU research efforts around production systems, community resilience, human health, biodiversity, and consumer economics with regional food and agricultural projects; 2) foster new interdisciplinary collaborations both within CSU and with other academic, public, and private institutions; and 3) position their research team to successfully compete for research funding that will establish the University as a leader in this rapidly emerging field. The team was able to establish a robust food systems network at CSU, learn from others’ disciplines and ways these might inform their own work, establish new long term cross-campus collaborations, and bring together existing food systems efforts from across campus.

Key accomplishments:
- Weekly sustainable food systems seminar for 14 graduate students from 6 different departments and 8 faculty members from 5 departments
- Held 3 large events to develop food systems research networks, increase communication across the University, and for faculty to brainstorm research topics
- Wrote 2 manuscripts: 1 published and 1 in progress
- Obtained $35,000 in support from other sources

World Wide Views on Climate Change and Energy
Convening an interdisciplinary team to discuss results from the June 6, 2015 World Wide Views on Climate and Energy 'Day of Deliberation' event and conduct academic research projects on citizen engagement and public opinion on climate change and energy issues.

**Award:** $10,000  
**Principal Investigators:**  
Michele Betsill, Department of Political Science  
Tony Cheng, Department of Forest and Rangeland Stewardship  
David McIvor, Department of Political Science

**Research Areas:** Climate Change and Energy; Environmental Institutions and Governance

With looming challenges for policymakers and stakeholders to confront the issues of climate change and energy production, global citizen input in governance decisions is largely absent from discussions. Lack of opportunities for citizen engagement in decision-making processes may be perceived as a democratic deficit of global governance. The World Wide Views on Climate Change and Energy research team formed to encourage public deliberation and understanding around climate and energy issues. To encourage dialogue about these issues from local to global, they hosted two citizen engagement events during the year. The first was was a panel organized to present results and discuss possibilities from the Global Day of Deliberation on climate change and energy, where CSU was one of four sites in the United States to host an event on behalf of the World Wide Views Alliance. The second event was an opportunity for Fort Collins residents to deliberate about the City of Fort Collins Climate Action Plan, with results provided to the City for consideration as they move forward with collecting feedback on its implementation. Finally, the team conducted a literature review on mini-publics, which are representative subgroups of a population brought together for the purpose of engagement and political deliberation.

2015-16 Annual Report 9
Environmental Justice CSU  environmentaljustice.colostate.edu
Exploring how and why equity and environmental justice are important elements of the study of the environment, public health, and sustainability at CSU.

Award: $10,000
Principal Investigators:
Tara O’Connor Shelley, Department of Sociology
Melinda Laituri, Department of Ecosystem Science and Sustainability
Dimitris Stevis, Department of Political Science
Stephanie Malin, Department of Sociology
Research Areas: Climate Change and Energy; Food Security; Environmental Institutions and Governance; Sustainable Communities; Land and Water Resources; Biodiversity, Conservation and Management

Equity and environmental justice refers to the distribution of both environmental harms and benefits among people and between people and nature. Disciplinary interpretations of equity and environmental justice vary, producing important yet fragmented bodies of literature. In its second year of funding as a SoGES research team, Environmental Justice CSU raised the profile of equity and environmental justice and encouraged interdisciplinary research approaches at the University. During FY 2015-16 the team worked to build and sustain the environmental justice community of CSU scholars, document and refine the linkages between environmental justice and SoGES focal areas of sustainability research, educate students about environmental justice issues, and begin strategizing long-term goals for the research team and scholarly community toward their ultimate goal to establish an environmental justice center at the University.

Key accomplishments:
- Membership increased to nearly 150 members, including 80 faculty, researchers, and students from 17 departments and all 8 colleges
- Hosted and co-hosted 15 events attended by approximately 500 people, including: 4 Environmental Justice Roundtables for experts to discuss research and philosophies, 3 Java and Justice events for researchers to present to students and colleagues, 5 lectures co-hosted with other academic units, and 2 events co-hosted with community organizations
- Transcribed and edited environmental justice briefs from the roundtable events hosted FY 2015-16 and the previous year
- Organized and delivered a one-day environmental justice workshop for the WCNR natural resources 544D class
- PI Stephanie Malin collaborated with faculty from University of Colorado, Boulder in the Colorado Power Dialog: an event for students to interact with state leaders as they develop a state-wide clean power plan

Social Sciences in Air Quality, Climate, and Health Research
Studying linkages between pollution and other aspects of air quality, climate change, and public health, with engagement from the social sciences to better understand human choices and behavior, improve communication of risks associated with poor air quality, and devise solutions to improve human health.

Award: $7,000
Principal Investigators:
Marilee Long, Department of Journalism and Media Communication
Sonia Kreidenweis, Department of Atmospheric Science; Cooperative Institute for Research in the Atmosphere
John Voickens, Department of Mechanical Engineering; Center for Energy Development and Health
A.R. Ravishankara, Department of Chemistry
Jennifer Peel, Department of Environmental and Radiological Health Sciences
Research Areas: Climate Change and Energy

Poor air quality, and the resulting public health risks, stems almost entirely from the world’s reliance on fossil fuel and biomass for energy and is tightly linked with climate change. While air pollution has been recognized as one of the leading causes of death and greatest risks to human health worldwide, governments, institutions, and individuals have been slow to acknowledge the need for change and to adopt effective change strategies. Communicating air quality risks, accepting the need of change, and implementing solutions must occur on scales from the individual to the global. The Social Sciences in Air Quality, Climate, and Health Research team formed to connect these changes and their impacts to individuals and their lives by integrating the social science component to air quality research.

The team spent FY 2015-16 convening researchers from across campus to integrate social sciences into the existing work advancing scientific understanding of poor air quality and the role of changing climate in air quality issues. The team worked to integrate and promote an understanding of human behavior, governance and policy making, economic forces, and social systems in air quality research. They used funds to host a series of diverse networking and educational events to improve social science and air quality research connections and explore how social sciences can be effectively integrated. Over the year, participants gained a better understanding of the role that social science plays in addressing stakeholder needs in air quality, climate and health. The team successfully established new scientific relationships and collaborations across the University, many of which have begun new partnered work and exploration of additional funding opportunities.
EcoDistrict Urban Resiliency Metrics

Developing standardized measures and collecting baseline data to create a scientifically rigorous set of metrics for the EcoDistrict Framework, which will eventually be tested in the City of Fort Collins to help the City realize its climate neutrality, resource reduction, and healthy community goals.

**Award:** $10,000

**Principal Investigators:**
Brian Dunbar, Institute for the Built Environment
Jane Choi, Department of Horticulture and Landscape Architecture
Jeni Cross, Department of Sociology

**Research Areas:** Climate Change and Energy; Food Security; Sustainable Communities; Land and Water Resources; Biodiversity, Conservation and Management

As Earth’s population becomes increasingly urban, cities are facing complex economic, social, and environmental sustainability challenges that are best met through the collaborative effort of municipalities, private business, and applied researchers. Communities must identify tactics to establish and maintain healthy neighborhoods for future generations within the context of climate change and resource depletion. The global EcoDistricts Initiative is an effort to create and regenerate neighborhoods that are resilient, vibrant, resource efficient, and just. However, the current EcoDistrict Framework lacks scientific partnerships and metrics to assess each of its goals. The EcoDistrict Urban Resiliency Metrics research team was formed to create the metrics and collect baseline data for the comprehensive EcoDistrict Framework, a critical first step in applying the framework locally in Fort Collins and informing subsequent research and development work for the global EcoDistricts effort.

The research team spent FY 2015-16 collecting existing data for the EcoDistrict Priority Areas and identifying gaps in environmental, economic, and social science for each. The team convened two interdisciplinary workshops with CSU faculty, researchers, students and City of Fort Collins staff to understand how to best measure progress in each EcoDistrict Priority Area, focused locally on the City of Fort Collins. Teams of subject experts were identified for each of six EcoDistrict Priority Areas, and analyzed current metrics and performed a gap analysis to recommend improved metrics. Additionally, the LAND630 class, Topics in Urban Design, analyzed the Fort Collins River District per the EcoDistrict Priority Areas, gathering applicable metrics to supplement the outcomes of the metrics workshops. The research team plans to integrate the new set of existing and missing metrics into the EcoDistricts protocol, and as a baseline for establishing an EcoDistrict in Fort Collins in the future. Additionally, the missing metrics will be used to outline potential research topics for developing a district-scale research agenda in the future.

Adaptation to Alternating Weather Extremes

Studying the ecological and social impacts of rapid “whiplash” among droughts, wildfires, and floods as a consequence of climate change and working to identify strategies to better prepare communities for sustainable adaptation to this increasing threat.

**Award:** $10,000

**Principal Investigators:**
Craig Trumbo, Department of Journalism and Media Communication
Lori Peek, Department of Sociology
Melinda Laituri, Department of Ecosystem Science and Sustainability
Russ Schumacher, Department of Atmospheric Science

**Research Areas:** Sustainable Communities; Land and Water Resources

As a consequence of climate change, there is an increasing probability that areas may undergo a rapid “weather whiplash” between droughts, wildfires, and floods. When occurring together in a short period of time, these hazards pose extraordinary risk to agricultural systems and economies, both rural and urban infrastructures, and the natural ecosystems on which we depend. The Adaptation to Alternating Weather Extremes research team used funds to analyze historical data, dating back to 1960, to locate in time and place extreme events in which these three hazards have exerted a combined effect in the United States and identify exemplar cases of weather whiplash over the last 50 years. During the year they transformed an original dataset of 87,000 drought, wildfire, and flooding incident reports into a time-series and began analyzing those events based on geographic proximity.

The research team aims to translate findings into actionable recommendations for improving community preparedness and resilience against the weather whiplash aspect of natural disasters. Further investigation will reveal ecological and social effects of weather whiplash and help identify strategies to better prepare communities for sustainable adaptation to this increasing threat. The final phase of this work, which will be conducted as a SoGES Resident Fellowship in FY 2016-17, will combine studies on ecological and social effects and examine historical records to investigate the social responses and consequences of these past events.
Resident Fellows

Faculty members engaged in creative sustainability research and problem solving. The program is designed to enhance scholarly contributions to sustainability by providing opportunities to accelerate progress and engage in the academic life of the School.

$17.1K awarded to 3 fellows from 3 colleges

Colleen Duncan
Department of Microbiology, Immunology, and Pathology

Award: $5,700
Research Areas: Environmental Institutions and Governance; Sustainable Communities; Biodiversity, Conservation and Management

Colleen Duncan is a veterinarian specializing in epidemiology and pathology and works in wildlife health research. Her work looks beyond the traditional approach of documenting and characterizing disease to the promotion of health, which is the result of interacting biological, social, and environmental factors. Her research aims to better characterize health and the interconnectivity of humans, animals, and the environment, so it may be used as a powerful metric for conservation. Colleen spent FY 2015-16 developing concepts of health in wildlife conservation in collaboration with the Canadian Wildlife Health Cooperative and other scientific partners. During the year she wrote a report to the Centre of Foodborne, Environmental, and Zoonotic Infectious Diseases in Canada focused on early warning signals at the wildlife-environment-human nexus to inform public health decisions on climate change vulnerability and developed a multidisciplinary approach to defining wildlife health in national parks. She also used her Fellowship to design two new CSU courses: GES 450 Health and Sustainability and PBHL 692 Healthy Parks Healthy People.

Maria Fernández-Giménez
Department of Forest and Rangeland Stewardship

Award: $5,700
Research Areas: Climate Change and Energy; Food Security; Environmental Institutions and Governance; Sustainable Communities; Land and Water Resources; Biodiversity, Conservation and Management

Maria Fernández-Giménez is a rangeland ecologist interested in ecological and social dimensions of wildland ecosystems. Her Fellowship investigated the art and craft of poetry and the practice of art-based research. During FY 2015-16 she created the Land, People, Poetry Network, which engaged diverse members of the CSU campus including faculty from multiple departments, graduate students, staff, and alumni, in a creative exploration of science, poetry, and sustainability. The network met regularly throughout the year, sponsored a visiting scholar, hosted a seminar and a public poetry reading, and held two writing workshops. Additionally, Maria published a manuscript containing a poetic analysis of herder interviews. As part of this process, she used Fellowship support to travel back to her study sites in Spain and read the poems, back-translated into Spanish, to the original interview participant, which added meaning, validity, and impact to the work. She also networked with Spanish colleagues working on similar themes and as a result is helping organize a workshop on art and ecology in Barcelona titled Realising Potentials: Arts-Based Sustainability Science.

Charles Davis
Department of Political Science

Award: $5,700
Research Areas: Climate Change and Energy; Environmental Institutions and Governance

Charles Davis is a political scientist interested in energy and public lands policymaking. He spent FY 2015-16 conducting research on U.S. state and federal policies that regulate hydraulic fracturing for oil and gas and the extent to which federal regulators balance the need for energy development with environmental protection. He also investigated disaster management related to fracking, such as how states deal with the emergence of earthquakes linked to hydraulic fracturing operations and whether the state's reliance on oil and gas affected their likelihood to adopt earthquake mitigation policies. Charles developed two manuscripts related to this work: one on the Bureau of Land Management and how it balances fracking with its mandate for multiple use management, and the other on states with high oil and gas production and whether the adoption of policies aimed at reducing environmental risks of fracking was linked to the economic or political characteristics of the state.
Visiting Fellows

Local and international scholars hosted by the School to collaborate and connect with faculty experts at CSU while they work on their sustainability-related research.


Ademola Adenle is a former Research Fellow at the United Nations University, Japan. His current work focuses on sustainable development at the interface of natural and social sciences. As a Visiting Fellow with the School, he is working with interdisciplinary experts to co-edit a book on science, technology, and innovation for meeting sustainable development goals. He is also collaborating with faculty from the CSU’s Department of Agricultural and Resource Economics on a multi-stakeholder analysis of climate change mitigation and clean energy in Africa. For this work, they are examining low-carbon development programs for renewable energy and barriers to implementation of these programs.

**George Taylor** United States | Sept. 2015-Aug. 2017

George Taylor is director of Philanthropy Support Services, a division of PaxTerra Inc. and chair of the advisory council of the Center for Asian Studies at University of Colorado, Boulder. As a Visiting Fellow George deepened his understanding of water resources in high mountain Asia with a particular focus on past, present, and potential future CSU contributions to water resources management in south, south-east and central Asia. He also explored internationalization at CSU with a view to recommending next steps to the University and applying lessons learned at University of Colorado, Boulder. George prepared a presentation for the Confucius Institute session at the AGU/CSU Hydrology Days 2016, gave a guest lecture in the Department of Languages, Literatures and Cultures course LFRE 492/692, and expanded his presentation on water resources in high mountain Asia.


Karen-Beth Scholthof is a professor in the Department of Plant Pathology and Microbiology and the faculty director of the Bioenvironmental Sciences undergraduate honors program at Texas A&M University. Karen spent her sabbatical as a Visiting Fellow with SoGES focused on her research on the history of tobacco mosaic virus with a particular focus on how Mendelian genetics was used to breed virus resistant pepper and tobacco plants. At CSU she shared her interests in the history of plant virology and the co-evolution of host-virus interactions that resulted in new ideas in the mid-20th century about the genetics of resistance for plant breeding. She participated on a SoGES Managing the Planet panel, interacted with School affiliates, and published a manuscript.


John Grant is former Robert Kirby Professor of Strategic Management at the University of Pittsburgh. His current work focuses on interactions between organizational management and complexity of the natural world. As a Visiting Fellow, John has been giving presentations and networking with business schools and colleagues to increase the recognition and need for collaboration with environmental sciences.

**Paul Hellmund** United States | Mar. 2016-Feb. 2017

Paul Hellmund is an educator interested in understanding and incorporating sustainability into land-use decision making and the role of project- and place-based experiential learning for sustainability in higher education. He is the founder and president of Hellmund Associates and is the former president of the Conway School and director of its graduate program in sustainable landscape planning and design. As a Visiting Fellow, Paul aims to understand how innovative, experiential teaching approaches, most readily applied to small groups of learners, can be adapted to large universities and teaching sustainability. In FY 2015-16 Paul interviewed instructors and administrators to learn more about sustainability education at CSU and was invited to speak at the summer conference of CSU’s Institute for Learning and Teaching. In the coming year, he will continue to collaborate with faculty at the University to further develop ideas for teaching sustainability.

“**SoGES is a gem at the heart of CSU that nurtures important new initiatives, promotes cross-pollination and interdisciplinary thinking, and proactively injects global perspectives across the CSU campus and Fort Collins community.”**

“**SoGES is more than the sum of its parts: the School provides the structure to support and create opportunities for scholars to explore how deeply and broadly we can think about (and imagine) the complexity of life on Earth and how we can use this knowledge to ensure that such diversity is maintained and nurtured.”**
The 2015-16 cohort of Sustainability Leadership Fellows – selected annually – are interested in communicating their sustainability-related research. The School provides state-of-the-art training to effectively communicate science to the media and public, professional development skills and techniques, and strategies to build meaningful careers that incorporate engagement and interdisciplinarity.

**Training Curriculum:**

- **Two-day intensive Science Communication Workshop** | Sept. 9-10, 2015
- **Time Management and Writing Productivity** | Sept. 29, 2015
  Sarah Reed, Wildlife Conservation Society and Department of Fish, Wildlife, and Conservation Biology
- **Storytelling** | Nov. 11, 2015
  John Calderazzo, Department of English and Changing Climates CSU
- **Science and Policy** | Dec. 8, 2015
  Barry Noon, Department of Fish, Wildlife, and Conservation Biology and Doug Cloud, Department of English
- **Communication drill: 2 Minutes to Describe Your Science to the CSU Provost** | Dec. 8, 2015
- **Interviewing and Job Negotiation** | Feb. 23, 2016
  Dan Bush, Office of the Provost and Executive Vice President and Department of Biology
- **Working on Interdisciplinary Teams** | Mar. 24, 2016
  Kathleen Galvin, Department of Anthropology
- **Seeking Support for your Research: Proposal Writing and the Funding Landscape** | Apr. 26, 2016
  Peter Backlund, School of Global Environmental Sustainability and Alan Knapp, Department of Biology

Additionally, Fellows each wrote a blog post and peer reviewed another’s work for publication on the School’s HumanNature blog.

---

**SUSTAINABILITY HOUR RADIO SHOW**

The 2015-16 cohort of Sustainability Leadership Fellows created and hosted The Sustainability Hour, a weekly KCSU radio show that began airing in spring 2016. The show serves as a platform to discuss global scale sustainability challenges, the impacts of human-induced changes on the natural world, and the current research addressing these important issues. Additionally, it provided an opportunity for Fellows to put their science communication training into practice. Over the course of the semester, Sustainability Leadership Fellow hosts interviewed more than 30 professors, graduate students, and visiting researchers working in a wide range of sustainability topics such as food security, biological diversity and conservation, climate change, and environmental governance.
The SLF program is my favorite accomplishment of my graduate school experience at CSU. I plan to incorporate an aspect of sustainability in all of my research, my career, and my writing.”

“...this is a tremendously beneficial program 1) for the tangible skills it imparts, and 2) for the opportunity that it provides to step back from our disciplines and engage with other passionate, young researchers across the University.”
**Global Biodiversity Center** *(GBC)* biodiversity.colostate.edu

**A network of faculty working on biodiversity research at the University to encourage knowledge transfer and cross-campus collaboration.**

---

**Executive Committee**

Chris Funk (Director), Department of Biology

Joel Berger, Department of Fish, Wildlife, and Conservation Biology

Cynthia Brown, Department of Bioagricultural Sciences and Pest Management

Colleen Duncan, Department of Microbiology, Immunology, and Pathology

Kathleen Galvin, Department of Anthropology; School of Global Environmental Sustainability

Barry Noon, Department of Fish, Wildlife, and Conservation Biology

Arathi Seshadri, Department of Soil and Crop Sciences

Kate Shoenecker, Department of Ecosystem Science and Sustainability

Diana Wall, Department of Biology; School of Global Environmental Sustainability

George Wittemyer, Department of Fish, Wildlife, and Conservation Biology

---

The mission of the new Global Biodiversity Center is to advance understanding, conservation, and appreciation of life’s variation, ranging from genetics and organisms to ecosystems and their interactions. In all systems, aquatic to terrestrial and managed to natural, biodiversity maintains life on our planet and underpins the ecosystem services vital to human well-being, including food, carbon storage, climate regulation, and aesthetics and cultural support. The Global Biodiversity Center works to maintain and enhance biodiversity through research, policy advancement, education, and outreach at the University. Originally the SoGES Biodiversity Working Group, in 2015 the Global Biodiversity Center became an officially designated Center of the University. In FY 2015-16 the Center worked to formalize its leadership, increase online presence, and engage with the Fort Collins and academic communities.

**In FY 2015-16 the Global Biodiversity Center:**

- Created an interactive online map that features the breadth and global distribution of biodiversity research being conducted at CSU; currently 52 projects and 17 faculty researchers featured
- Hosted 2 large events: a pollinator workshop and fast-paced ignite-style talks
- Overhauled its website to improve the user interface and more closely resemble the SoGES family of websites and created a Twitter account and a Facebook page to increase online engagement

---

**The Africa Center** africacenter.colostate.edu

**A community of faculty, students, community members, and African partners addressing issues of African biodiversity, conservation, health, and livelihoods.**

---

**Leadership**

Kathleen Galvin (Director), Department of Anthropology; School of Global Environmental Sustainability

Jessica Davis, Department of Soil and Crop Sciences

Paul Evangelista, Department of Ecosystem Science and Sustainability; Natural Resource Ecology Laboratory

Stacy Lynn, Department of Ecosystem Science and Sustainability; Center for Disaster and Risk Analysis; Natural Resource Ecology Laboratory

Robin Reid, Department of Ecosystem Science and Sustainability; Center for Collaborative Conservation

Sue VandeWoude, Department of Microbiology, Immunology, and Pathology

---

The mission of the Africa Center is to enhance biodiversity, advance human and animal health, empower communities, and promote environmental, economic, and social sustainability in Africa. The Center invests in innovative and interdisciplinary research that crosses conventional disciplines in an attempt to tackle environmental and sustainability issues on the continent. Members are actively involved in research, education, and collaborative engagement between institutions in Africa and the United States to promote sustainable ecosystems and societies.

In FY 2015-16, the Africa Center experienced a year of growth in community engagement, international interest, and student, faculty, and staff participation. The Center established new connections with African nongovernmental organizations in Colorado, including Thinking Humanity and the Murulle Foundation, and launched a partnership with United Way of Weld County to develop a project focused on African refugees living in Northern Colorado. A key accomplishment was the creation of an Africa projects and partnerships online map, which acts as a geographic networking tool to connect University researchers and students to practitioners and policymakers. The map currently features 34 research projects, representing about one third of CSU research on the African continent.

**In FY 2015-16 the Africa Center:**

- Hosted Calestous Juma and 3 other acclaimed guest speakers, 4 coffee socials, and an Africa & Ale networking event with a specially brewed southern Africa style beer
- Hosted the Africa Center Faculty Seminar Series, for faculty to share their research and connect with the CSU and Fort Collins communities
- Email list reached 415 recipients, an 80% increase and encouraged engagement with new Twitter and Instagram accounts, and 155 Facebook Likes, a 36% increase
Future Earth is a 10-year international initiative to coordinate new, interdisciplinary actionable science efforts and solutions to sustainability research and global environmental change. In 2015 Future Earth became operational around the world with the appointment of an Executive Director and staff in five Global Hubs based in Colorado, Montreal, Paris, Stockholm, and Tokyo. The Colorado Hub resides within the School of Global Environmental Sustainability at CSU and the Sustainability, Energy and Environment Complex at CU-Boulder, supported by a grant from the U.S. National Science Foundation. The CSU Future Earth site began fully functioning in FY 2015-16 with the appointment of the Colorado Global Hub Director Josh Tewksbury and support staff based at the University.

Future Earth officially transitioned a number of Core Research Projects from the International Geosphere-Biosphere Programme and Diversitas as those programs formally ended in 2016. Future Earth Global now manages over 20 large research programs focused on global environmental change and sustainability science. The Colorado Hub is directly responsible for managing three of these projects related to evolutionary biodiversity, global health, and ecosystem services. In addition, in 2015-16, the Colorado Hub managed the establishment of two new Knowledge Action Networks for Future Earth – one focused on connecting human and environmental health, the other focusing on ocean sustainability.

In FY 2015-16 the Future Earth Colorado Hub was also instrumental in the designation of two new Future Earth consortium offices in Africa established in 2016, one based in Rwanda, the other in South Africa. These offices will serve as conduits for communication between African science communities and the global Future Earth community. Finally, the Colorado Hub has developed a partnership with the Belmont Forum to draw on the expertise of the Future Earth scientific community to inform Belmont’s annual Collaborative Research Action (CRA) funding opportunities. The first two co-branded “Belmont-Future Earth CRAs” will focus on oceans and the food energy water nexus.

The Conservation Development Working Group is comprised of 38 scholars and practitioners from five colleges and 10 departments at CSU, plus 12 external institutions. They define conservation development as an approach to the design, construction, and stewardship of a development that achieves functional protection of natural resources, while also providing social and economic benefits to human communities. Their work focuses on creating a low cost, high impact research and outreach program of both scientific importance and practical relevance for land conservation and sustainable development and the group serves as a regional and national resource for information and expertise in this rapidly evolving field.

Originally a SoGES Global Challenges Research Team, Conservation Development was established as a working group with the School in 2015. The group’s primary activities in FY 2015-16 focused on continued collaboration with the City of Fort Collins Nature in the City initiative, and included developing wildlife connectivity models to inform land protection and management. The group also began implementing a second year of its citizen biodiversity project, a volunteer citizen science program for monitoring birds and butterflies on public and private open space in Fort Collins. Data from the biodiversity monitoring surveys were used by the City to implement the Nature in the City Strategic Plan, which includes design guidelines, policies, and actions to ensure that high-quality natural areas are preserved in a rapidly growing urban environment. Additionally, pre- and post-program surveys found that volunteers improved their knowledge of bird and butterfly ecology, became more familiar with Fort Collins open space and connected to nature, and reported increased interest in being involved with the Nature in the City initiative. During the year, the Conservation Development working group prepared manuscripts from prior research projects, submitted several grant proposals, published one report, had one journal article in press, and gave six scientific presentations.
Global Soil Biodiversity Initiative (GSBI) globalsoilbiodiversity.org

A collaboration of international scientists dedicated to enhancing the use of soil biodiversity science and ecosystem services in policy and management of global terrestrial ecosystems. The Global Soil Biodiversity Initiative secretariat is housed at SoGES.

The Global Soil Biodiversity Initiative encourages state of the art research from scientists internationally, while concurrently making that science relevant to the public, land managers, and policy makers. Scientific priorities include identifying key knowledge gaps linking soil biodiversity and ecosystem function, developing a platform for synthesis of soil biodiversity data, methods harmonization, and establishing a forum for global research networks. In FY 2015-16 the Global Soil Biodiversity Initiative made major contributions to advancing soil ecology knowledge and bringing it to global policy makers through publication of the Global Soil Biodiversity Atlas, a Status of the World’s Soil Resources report, and other peer-reviewed publications.

Key accomplishments:
- Contributed to the Status of the World’s Soil Resources, published by the Food and Agriculture Organization of the United Nations and prepared by the Intergovernmental Technical Panel on Soils
- Provided review for the European Food Safety Authority Scientific Opinion on risk assessment of plant protection products for in-soil organisms
- Organized a session at the Ecological Society of America Centennial Meeting, Weaving the Soil Biodiversity Food Web: Advancements in Understanding on a Global Scale
- Contributed to the Protist 2016 meeting in Moscow, Russia
- Translated the Hidden Life of Soil card game into Portuguese
- GSBI working groups published 3 peer reviewed manuscripts
- Members received ~$36,000 in funding support

In FY 2015-16 the GSBI:
- Membership grew to 907 scientists representing 95 countries, a 29% increase
- Facebook Likes grew to 2,351, a 106% increase
- Twitter followers grew to 2,644, a 76% increase
- Website saw 11,423 visitors from 167 countries
- Beneath our Feet blog saw 2,664 visits from 107 countries, a 42% increase
- Newsletter grew to 3,202 recipients, a 15% increase

The GSBI and European Commission Joint Research Centre formally unveiled the Global Soil Biodiversity Atlas at the United Nations Environment Assembly in Nairobi, Kenya, on May 25, 2016. The 175-page Atlas is a collection of scientific facts, figures, and images highlighting the role soil biodiversity plays in ecosystem services including nutrient cycling, food and fiber production, and greenhouse gas emissions. It is intended as a resource for policy makers, researchers, and soil enthusiasts alike. It is the first Atlas ever created for global soils, and was created with contributions of more than 120 scientists from 29 countries.

Published in print and online, the digital version of the Atlas has been viewed more than 3.7 million times and more than 24,000 copies have been downloaded as of June 30, 2016. It has been shared more than 8,000 times on Facebook and had over 125 million views on social media.

In praise of the Atlas:

“[the Atlas will] contribute to raising awareness about the importance of soil biodiversity for the functioning of our ecosystems, our ecosystem services and ultimately human well-being.”

—Anne Larigauderie, Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services

“… a major contribution to the [European Union] target of halting the loss of biodiversity and ecosystem services in the EU by 2020, and … the 2030 Agenda for Sustainable Development on sustainable food production and fighting land degradation.”

—Karmenu Vella, Commission for the Environment, Maritime Affairs and Fisheries, European Commission and Tibor Navracsics, Commission for Education, Culture, Youth and Sport, European Commission
The School is actively involved in educating and equipping students with knowledge and tools to tackle sustainability challenges by offering interdisciplinary sustainability curricula, promoting the development and integration of sustainability concepts into courses across campus, and working to increase the breadth of programs for all levels of students.
In FY 2015-16 the School converted two experimental courses to permanent courses, created a new course to be taught in Spring 2017, received approval for four graduate certificates, and created the new Interdisciplinary Minor in the Role of Sustainability in Peace and Reconciliation Studies.

Global Environmental Sustainability Minor (GES)

Providing students with core knowledge to address real world sustainability challenges, preparing students today to make a difference tomorrow. The minor is a 21-credit sequence with course offerings from 25 different subject codes across all eight colleges, providing depth in learning and allowing students to tailor coursework to augment their interests.

67 graduates 259 students enrolled from 46 different majors

Students enrolled in the GES minor come from all eight colleges and 46 different majors. Graduates have positions with companies that include City of Fort Collins Parks Department, Boy Scouts of America, Kind Designs, Vail Resorts, Videojet, and Colorado Outward Bound School.

“ My senior year of high school I was trying to decide where I would be attending college. I came to Fort Collins that day sure that I would be attending Colorado College, but because of the School of Global Environmental Sustainability I left a CSU Ram. The School of Global Environmental Sustainability is the reason I chose to attend Colorado State University, and it was likely the best and most influential decision I have ever made.”

- Michael Streight, GES minor graduate
GES Courses

GES 101: Foundations of Global Environmental Sustainability

GES 101 provides a comprehensive survey of issues in global sustainability and lays the groundwork for a firm understanding of sustainability grand challenges. Open to all students at CSU, the introductory course in the GES minor also exposes students to curricular opportunities across all eight colleges.

183 students enrolled in fall 2015
123 students enrolled in spring 2016
To date, 1,979 CSU students have completed GES 101

GES 101: Foundations of Global Environmental Sustainability

Offered online & classroom style

GES 101 provides a comprehensive survey of issues in global sustainability and lays the groundwork for a firm understanding of sustainability grand challenges. Open to all students at CSU, the introductory course in the GES minor also exposes students to curricular opportunities across all eight colleges.

183 students enrolled in fall 2015
123 students enrolled in spring 2016
To date, 1,979 CSU students have completed GES 101

GES 180-A1: Sustainable Energy

GES 180-A1 was approved in FY 2015-16 to become a permanent course, GES141, starting in the fall of 2016. The course introduces students to the basics of energy production and evaluates the sustainability of different sources of energy, including renewable energy. Students explore energy storage, transmission, pollution, and conversion and are introduced to life-cycle analysis, policies, regulations, and economics of energy production.

GES 180-A2: Introduction to Sustainability Engagement

The GES 180-A2 one-credit course was created to support the Eco Leaders Program run by CSU’s Housing and Dining Services. The course teaches students, selected as Eco Leaders for their dormitories, about campus sustainability efforts and how local actions are connected to global issues in sustainability.

183 students enrolled in fall 2015
123 students enrolled in spring 2016
To date, 1,979 CSU students have completed GES 101

GES 300-A1: Sustainability in Practice/GES 381 Practicum

The variable credit GES 300-A1 course focuses on implementing sustainability projects on campus. GES and EcoLeader students propose and implement projects to educate other students and increase the operational sustainability of campus life.

GES 441: Analysis of Sustainable Energy Solutions

GES 441 was approved in Spring 2016 and will be taught starting in 2017. The course will focus on energy as a critical resource for society and its connection to climate change, food production, and water resources. GES 441 will be the capstone for a soon-to-be-proposed minor in sustainable energy, and can also be taken by interested students outside the minor.

GES 450: Global Sustainability and Health

GES 450 was approved in Spring 2016 and will be taught starting in Spring 2017. The course is designed to introduce students to important aspects of health as they are influenced by environmental change and brings together physical and social sciences to highlight mechanisms of change.

GES 470: Applications of Environmental Sustainability

GES 470 concentrates on practices and problem solving for environmental sustainability and emphasizes assessment tools, decision-making, and best practices. The GES minor capstone course accepts a limited class size for more focused coursework and interdisciplinary student teams. Starting Fall 2015 GES 470 is now offered both semesters to accommodate the growing number of students enrolled in the minor.

67 students enrolled in FY 2015-16
To date, 277 students have completed GES 470

GES 480: Sustainability and the Law

GES 480 is an experimental course that was taught for the first time in Fall 2015. The course approaches sustainability through the lens of case law, considering the role of law from the local to the international level. Students explore the differences between how scientists address sustainability and how lawyers approach the issues.

GES 520: Issues in Global Environmental Sustainability

GES 520 is a dynamic course that provides students with a deep understanding of sustainability issues, placed in broader economic and social context. The course is open to all graduate students across campus.
Course Endorsement

The School endorses courses with strong sustainability content. There are 57 GES-endorsed courses across seven colleges. Endorsement is noted in the course catalog and on student transcripts, attracting additional students to these courses and allowing employers and graduate programs better insight into the value of courses taken.

Sustainable Water Interdisciplinary Minor (SWIM)

SWIM was created in 2015 by the CSU Water Center and is academically housed in the School, a collaboration that increases efficiency with academic coordination handled by the SoGES Curriculum Committee and content-relevant advising by Water Center staff. Minor students learn about water issues from social, political, economic, and ecological perspectives, and gain holistic knowledge of the complexities of water management and use. Currently there are 16 students enrolled in the minor and eight have graduated with the minor.

Interdisciplinary Minor in the Role of Sustainability in Peace and Reconciliation Studies (SPRS)

The SPRS minor was approved in Spring 2016 and will be actively enrolling students starting January 2017. Originally housed in International Programs, the minor migrated to be housed at SoGES in FY 2015-16. The SPRS minor was modified through changes in courses to encompass the social, philosophical, and educational aspects of peace and reconciliation and how these can address issues of sustainability.

Graduate Certificates

The University has created a new category of educational studies known as Graduate Certificates. These programs consist of 9-15 credit sequences that are narrowly focused on a particular topic. Students can receive the certificate as part of a Masters or Ph.D. program or as a stand-alone program. SoGES received authorization for four certificates in FY 2015-16, all of which will begin to accept students in January 2017. These certificates were created in conjunction with the University's Office of Defense Engagement.

Certificates:

- Graduate Certificate in Applied Global Stability: Agriculture
- Graduate Certificate in Applied Global Stability: Natural Resources
- Graduate Certificate in Applied Global Stability: Water Resources
- Sustainable Peace and Reconciliation Studies Graduate Interdisciplinary Studies Program
The School promotes dialogue about Sustainability with the local and global communities through an extensive number and diversity of events, ongoing discussion with a wide variety of stakeholders, and an active and dynamic online presence.
Dining with Sustainability dinners provide sustainability experts from the University, federal and local agencies, and the non-profit and private sectors an opportunity to:

1. Establish and strengthen networks
2. Identify opportunities for collaboration and information-sharing
3. Promote creative and innovative approaches to one’s work
4. Inspire research, enterprise, and collegiality

Each dinner is loosely structured to promote exchange of ideas and generate conversation through both small and large group formats over the course of the evening. The School circulates participant lists and food for thought in advance of each dinner and houses a full list of active participants on its website. The program covers dinner and refreshments, the event is casual and fun, and participants regularly stay well beyond the 2.5 hour timeframe to continue discussions.

"I think the member composition for the dinner was very well planned. It was cohesive, yet different. The networking dinner provided numerous opportunities for collaborating between academia and outside entities (e.g. City of Fort Collins), and inform other researchers about individual research and explore avenues for collaborative interdisciplinary research. I am confident that I will be able to work on new projects as a result of the dinner series from SoGES.”

Six dinners were hosted in FY 2015-16. The School accepts approximately 20 participants for each event, selected to assure disciplinary and organizational diversity and encourage active interaction. These participants came from:

- Colorado State University (26 departments and units across 7 colleges)
- local and federal agencies (U.S. Forest Service, U.S. Geological Survey, National Parks Service, City of Fort Collins)
- non-profit, non-governmental, and private organizations (Trees Water and People, The Nature Conservancy, Platte River Power Authority, Conservation Science Partners, Alliance for Sustainable Colorado, Rocky Mountain Innosphere, CARE International, Sylvan Dale Ranch, and several small businesses)

Participant surveys consistently reported new connections established, stimulating conversations, new perspectives gained, new ideas and renewed inspiration for one's work, and overall enthusiastic reviews of the program and opportunity to engage with a community of experts working in sustainability science.

"...the conversation was deep, inspiring, and I believe there will be meaningful follow-up interactions.”
Student Sustainability Center

A University-wide, student run organization dedicated to empowering students to engage in sustainability activities and innovation. The Center involves students in volunteer projects, hosts events to raise awareness about sustainability, consolidates and distributes sustainability-related information and news, and builds relationships across campus to promote environmental initiatives. The Student Sustainability Center is housed at SoGES.

The Student Sustainability Center worked to continue and grow its presence on campus and expand and improve partnerships with external organizations in FY 2015-16. The Center made significant improvements to existing projects to have greater impact, particularly the sustainability signage and nitrogen footprint projects. Membership increased as well as student involvement in projects and events, and the Center was able to facilitate many connections for students to obtain sustainability-related internships and volunteer opportunities.

In FY 2015-2016 the Center had:

- 4 paid officers: director, associate director of engagement, associate director of outreach, secretary
- 16 attendees on average at bi-weekly meetings
- 1,129 email subscribers, a 20% increase
- 674 Facebook Likes, a 10% increase

Projects:

- **Nitrogen Footprint Project**: the Student Sustainability Center completed the final nitrogen footprint calculation for the CSU campus in Jan. 2016. The Center discovered that the largest source of nitrogen output at the University in 2014 came from food procurement, followed by utilities and electricity use. The Center held meetings with CSU leadership to make recommendations on implementing nitrogen reduction efforts. This project is part of the Nitrogen Footprint Network, funded by the U.S. Environmental Protection Agency.

- **Sustainability Signage Project**: the Center placed new signs throughout campus to remind people to limit paper towel usage, turn off lights, and bring a water bottle to campus.

- **Leave the Plastic, Plant a Tree**: the Center continued the campaign to reduce the use of single-use plastic bags in CSU’s Lory Student Center bookstore in association with the Associated Students of CSU Plastic Ban Resolution.

- **Associated Students of CSU Endorsements**: the Center was a primary endorser of two resolutions passed by ASCSU - the Fair Trade University Resolution and the Building Efficiency Resolution.
Website

sustainability.colostate.edu

In FY 2015-16 the School website experienced:
- 55,399 visits, a 6.4% increase
- visits from 187 countries
- international traffic constituted 23% of total visits

The website houses 174 archived event and educational videos, which received 1,186 views during the year.

Social Media and Correspondence

In FY 2015-16 the School had:
- 3,056 subscribers to the School email list and newsletter, a 10% increase
- 1,300 Facebook Likes, a 9.5% increase
- 1,823 Twitter followers, a 21% increase

Blog

blog.sustainability.colostate.edu

In FY 2015-16 the HumanNature blog had:
- 20 guest posts from CSU early career postdoctoral fellows and Ph.D. students
- 5,760 visits, a 31.8% increase
- international traffic constituted 50% of total visits

Media Mentions

In FY 2015-16 the School had:
- 113 mentions in the media
- 25 stories and mentions in CSU SOURCE
- 4 mentions in the Coloradoan

Events

In FY 2015-16, School conference rooms were used 239 times for sustainability-related meetings and events, totaling 458 usage hours, for groups from across campus and the community. The School provided audio-visual support for 140 of these meetings. Additionally, School conference rooms were used 110 times for School-initiated meetings and events, totaling an additional 136 usage hours.

Public events held showed an increase of 35% from the previous year. These included 15 panels, 9 receptions, 25 guest lectures, 8 workshops, 5 showcases, 6 film screenings, and 2 conferences and ceremonies.
ENGAGEMENT

The film is here!

MERCHANTS OF DOUBT
A FILM BY DOUGLAS INNEN

Inspired by the acclaimed book by Steven D. Cohen and Lisa J. Copeland, MERCHANTS OF DOUBT follows environmental activists as they attempt to sabotage the media and scientific findings on tobacco and climate change.

Wednesday - 2015
SEPT 30
6pm-8pm
Colorado State University
Larry Student Center Theater
sustainability.colostate.edu/events/merchants-of-doubt

CLEAN POWER PLAN

By 2020, the Clean Power Plan will reduce carbon pollution from power plants by 32%, or 650 million metric tons of carbon dioxide equivalent.

WEDNESDAY - 2015
September 30
1:30-3:30pm
Larry Student Center Theater
Free event; tickets required. Register at: nps.gov/abs.

100 YEARS ROCKY MOUNTAIN NATIONAL PARK

Conversations on Park History & Interpretation

THURSDAY - 2015
NOV 5, 2015
4:15-6:30pm
Morgan Library Event Hall
circular.colorado.edu/100-years

CLIMATE ACTION 2020 YOU OPEN HOUSE

THURSDAY - 2015
DEC 14, 2015
5:30-7:30pm
Galvanize, 22 1/2 Linden St.
Visit for open house on the integration of climate action into professional education.

RURAL Reinvented

EXPLORING SHIFTS IN SOUTHERN AMERICA

FEBRUARY 2016
Morgan Library Event Hall
circular.colorado.edu/events/rural-reinvented

THE POLAR REGIONS
AN ENVIRONMENTAL HISTORY

ED WARNER

THURSDAY - 2016
MARCH 3, 2016
4:30-6:30pm
Morgan Library Event Hall
circular.colorado.edu/events/polar-regions

ED WARNER

THURSDAY - 2016
MARCH 31, 2016
3:00-5:00pm
Morgan Library Event Hall
circular.colorado.edu/events/ed-warner
Managing the Planet Panel Series  Addressing the most current sustainability issues with diverse panels of CSU experts and designed for engagement with the local community.
TERRESTRIAL LASER SCANNERS (TLS) collect stunning 3D, spatial data sets of just about anything they can be pointed at, making them a versatile tool for scientists studying everything from landforms to even marine biology. UNAVCO, Inc., an NSF-sponsored non-profit based in Boulder, CO, provides TLS equipment and field engineering support to several projects in Antarctica every year as part of its greater geodetic support mission. Come learn how this innovative technology is being used by our field engineers to help geologists, volcanologists, biologists and historians in Antarctica further their studies!

UNAVCO is a non-profit based in Boulder, CO, providing TLS instruments and field engineering support to several projects in Antarctica every year as part of its greater geodetic support mission. The technology is being used by researchers to help further their studies in Antarctica.
Resident Fellow: María Fernández-Giménez  
*The Enclosure of the Commons and the Language of Pastoral Protest: A Trans-Historical Perspective*  
25 attendees | Sept. 10, 2015  
Featuring: Daniel Eltringham, Department of English and Humanities, Birkbeck College, University of London.

*Land, People, Poetry: A Reading*  
40 attendees | Sept. 23, 2015  
Featuring: Matthew Cooperman, Department of English, CSU; Aby Kaupang, Fort Collins Poet Laureate; Cedar Brant, Colorado Review, CSU; and Daniel Eltringham, Department of English and Humanities, University of London.

**Land, People, Poetry Network Workshops:**  
*The Stories Around Us: Science, Art, and Everything in Between*  
20 attendees | April 25, 2016  
Led by John Calderazzo

*Poetry Workshop*  
15 attendees | May 2, 2016  
Led by Dan Beachy-Quick

**GCRT: Food Systems**  
*Food Systems Fusion*  
Apr. 18, 2016 | 50 attendees  
Featuring: Meagan Schipanski, Becca Jablonski, Michael Carolan, Ragan Adams, Cini Brown, Theresa Nogeire, and Elizabeth Ryan. IGNITE-style talks to develop food systems research networks and communication across the University. Co-hosted with CSU’s One Health Initiative.

*Sustainable Food Systems*  
Aug. 19, 2015 | 25 attendees  
A workshop for CSU researchers to brainstorm research topics.

*Resiliency Slam*  
Jun. 18, 2015 | 50 attendees  
CSU researchers and community members to discuss the meaning of “resiliency” from many different perspectives.

**GCRT: World Wide Views on Climate Change and Energy**  
*Bringing Citizen Voices to the Paris Climate Talks: The World Wide Views on Climate and Energy Report*  
Nov. 4, 2015 | 40 attendees  
A seminar to reflect and share results, processes, and values of the June 6, 2015 global day of deliberation and consider how to continue the discussion locally in Fort Collins.

*IGNITE Environmental Politics and Governance*  
Mar. 21, 2016 | 50 attendees  
Fast paced Ignite-style presentations on topics ranging from sciences in environmental policy making, large marine protected areas, green economy, forests, water, energy, rangelands, and climate change.

*Community Voices on the Fort Collins Climate Action Plan*  
Apr. 24, 2016 | 50 attendees  
A citizen deliberation to discuss specific aspects and address community concerns on the ambitious Fort Collins Climate Action Plan.

**GCRT: Social Sciences in Air Quality, Climate, and Health Research**  
*Preparing for the Long Range Future: Observations from the Interface of Environmental Science and Policy*  
Oct. 8, 2015 | 45 attendees  
Guest lecture: Anthony Janetos, Director and professor, The Frederick S. Pardee Center for the Study of the Longer-Range Future, Boston University.

*The Secret Life of Human Communication: Meaning, Message, and Behavioral Choice*  
Mar. 31, 2016 | 65 attendees  
Guest lecture: Susan Jasko, Professor of Communication Studies, California University of Pennsylvania.

*National Smoke Warning Workshop*  
Jun. 7, 2016 | 30 attendees  
Workshop on creating a national warning system for wildfire smoke events.

**GCRT: Hydraulic Fracturing**  
U.S. EPA Visit  
Apr. 13, 2016  
A meeting with 17 representatives from U.S. EPA Region 8 to discuss environmental impacts of hydraulic fracturing and oil and gas extraction.
GCRT: Environmental Justice CSU

Guest speaker: Zhong Zhao, Founder and Director of Chinese NGO Green Camel Bell, UC-Davis. Co-hosted with CSU Department of Sociology.

*Environmental Justice and Citizen Science: Love Canal as a Technological Disaster* | Oct. 7, 2015 | 85 attendees
Guest speaker: Lois Gibbs, Executive Director, Center for Health, Environmental and Justice, Falls Church, Virginia.

*Environmental Justice: How Each of us Harms the Vulnerable* | Apr. 4, 2016 | 100 attendees
Guest speaker: Kristin Shrader-Frechette, O'Neill Family Professor and Director, Center for Environmental Justice and Children's Health, University of Notre Dame.

*Scientific Tricks that Polluters Use to Minimize or Cover Up Deadly Pollution* | April 5, 2015 | 30 attendees
Workshop with Kristin Shrader-Frechette, O'Neill Family Professor and Director, Center for Environmental Justice and Children's Health, University of Notre Dame.

*Conservation Leadership: A Speaker Series* | Nov. 2, 2015 | 60 attendees
Guest speaker: Peggy Shepard, Executive Director and Co-founder of WE ACT. Co-hosted with Warner College of Natural Resources, The Riordan Family Program of Natural Resources Environmental Leadership, and The Grimwood Heritage Fund.

*Warner College of Natural Resources 544D Environmental Justice Workshop* | Jan. 29, 2016 | 15 attendees
Workshop for Conservation Leadership through Learning master students.

*Recovery and Resilience in the Gulf: Bouncing Back (or not) from the 2010 Gulf Coast Oil Spill* | Apr. 8, 2016
Guest speaker: Brian Mayer, Associate Professor, School of Sociology, University of Arizona. Co-hosted with CSU Department of Sociology, United Chapters of Alpha Kappa Delta, CSU Center for Disaster and Risk Analysis.

*A Tale of Two States: Exploring State Responses to ‘fracking’ in New York and Pennsylvania* | Apr. 19, 2016 | 10 attendees
Guest speaker: Damayanti Banerjee, Department of Sociology Faculty Affiliate, CSU. Co-hosted with CSU Department of Sociology.

*Time for a Colorado Revolt: Elevating Community Rights Above Corporate Power* | June 23, 2016 | 55 attendees

Java and Justice:

*Environmental Harm and Justice in China* | Sept. 30, 2015 | 8 attendees
Guest speaker: Zhong Zhao, Founder and Director of Chinese NGO Green Camel Bell, UC-Davis.

*Bridging the Gap: Activists, Environmental Justice Research, and Building Trust* | Oct. 8, 2015 | 10 attendees
Guest speaker: Lois Gibbs, Executive Director for the Center for Health, Environment, and Justice.

*Just Resilience* | Apr. 8, 2016 | 30 attendees
Guest speaker: Brian Mayer, Associate Professor for the School of Sociology, University of Arizona.

Environmental Justice Roundtable Panel Discussions:

*Food Justice for All* | Oct. 30, 2015 | 40 attendees
Panelists: Diana Guber, The Growing Project; Jill Harrison, Department of Sociology, CU-Boulder; Josh Sbicca, Department of Sociology, CSU; and Karin Cespedes, Ethnic Studies Department, CSU.

*Climate Justice for All: The Moral Imperative for Climate Action* | Nov. 8, 2016 | 65 attendees
Panelists: Scott Denning, Department of Atmospheric Science, CSU; Shannon McNeeley, Natural Resource Ecological Laboratory, CSU; Susan Riederer, Climate Justice Action Ministry; and Peter Sawtell, Eco-Justice Ministries.

*Health Justice for All* | Dec. 8, 2015 | 10 attendees
Panelists: Jennifer Peel, Department of Environmental and Radiological Health Sciences, CSU; Sheryl Magzamen, Department of Environmental and Radiological Health Sciences, CSU; and Colleen Duncan, Department of Microbiology, Immunology, and Pathology, CSU.

*Energy Justice for All* | Apr. 22, 2016 | 30 attendees
Panelists: Cary Weiner, CSU Extension; Sarah T. Ramono, Political Science and International Affairs, University of Northern Colorado; Stephanie Malin, Department of Sociology, CSU; Dimitris Stevis, Department of Political Science, CSU; and David Ciplet, Department of Environmental Studies, CU-Boulder.

*Just Biodiversity: Who will speak for the environment?* | May 4, 2016 | 15 attendees
Panelists: Melinda Laituri, Ecosystem Science and Sustainability, CSU; Julia Klein, Ecosystem Science and Sustainability, CSU; and Robin Reid, Center for Collaborative Conservation, CSU.
Global Biodiversity Center

*Ignite Biodiversity* | 120 attendees | Apr. 21, 2016
A fast paced, entertaining evening of IGNITE-style presentations by CSU’s leading biodiversity scientists.

*The Brews and the Bees: Creating a “bee friendly” Fort Collins* | 60 attendees | Apr. 30, 2016
Panelists: Arathi Seshadri, Department of Soil and Crop Sciences, CSU; Boris C. Kondratieff, Department of Bioagricultural Sciences and Pest Management, CSU; Deryn Davidson, CSU Horticulture Extension Agent for Boulder County; and Lisa Mason, Department of Bioagricultural Sciences and Pest Management, CSU.

Student Sustainability Center

*Sustainable Living Fair* | Sept. 12-13, 2015
Participated in the planning of the fair (SSC Director sits on the fair steering committee) and organized a booth for the event.

*CSU Oscar and Solar Tour* | 14 Attendees | Sept. 30, 2015
Tour at the CSU Research Innovations Center to explore CSU’s composting machine, better known as “Oscar” and the Foothills campus solar power plant.

*"Catching the Sun" movie screening and panel discussion* | ~50 Attendees | Oct. 22, 2015

*"This Changes Everything" film screening and panel discussion* | 90 Attendees | Nov. 12, 2015
Screening of film with panel discussion on the future of global development.

*Fossil Free Film Festival* | Dec. 1-12, 2015
Movie series featuring discussions from influential individuals in the CSU community and across Colorado. Co-sponsored with 350 CSU.

*Climate Sweetheart Booth* | 100+ Attendees | Feb. 4, 2016
Booth where students filled out “valentines cards” to send to members of congress regarding the environment. Co-sponsored with Environmental Colorado.

Panel discussion with members of CSU and Fort Collins community about the future of local utilities.

*Sustainable Futures Conversations* | 20 Attendees | Apr. 18, 2016
Event to connect students with professionals in sustainability industries.

*Earth Day Festival Booth* | 200+ Attendees | Apr. 22, 2016
Annual celebration commemorating international Earth Day.

The Africa Center

*New paleoclimate and paleoenvironmental records of hominin evolution at Olduvai Gorge, Tanzania* | 60 attendees | Oct. 21, 2015
Guest speaker: Jackson Njau, Assistant Professor, Department of Geological Societies, Indiana University and Research Associate, The Stone Age Institute.

*Africa and Ale* | 40 attendees | Oct. 22, 2015
A networking event: Horse & Dragon Brewing Company brewed and donated a specialty southern Africa themed beer.

*Africa’s Next Harvest: Sustainable Agriculture and Biological Diversity* | 130 attendees | Nov. 12, 2015
Guest speaker Calestous Juma, Director of the Science, Technology, and Globalization Project at the Better Center for Science, Harvard University.

*Ebola, Zika, and Beyond: Covering Global Threats in a Globalized World* | 140 attendees | Mar. 22, 2016
Guest speaker Jason Beaubein, National Public Radio Global Health and Development Correspondent.

*Cheetah Conservation Fund: Scientific Research, Conservation, Education* | 100 attendees | Apr. 6, 2016
Guest speaker: Laurie Marker, Executive Director and Founder, Cheetah Conservation Fund. Co-sponsored with the Department of Human Dimensions of Natural Resources, CSU.

Africa Center Faculty Seminar Series

Featuring: Michael Pante, Department of Anthropology, CSU.

*Rice Bran Supplementation and Environmental Enteric Dysfunction in Mali* | 25 attendees | Nov. 18, 2015
Featuring: Elizabeth Ryan, Department of Environmental Health and Colorado School of Public Health, CSU.

*Development and Evaluation of Locally-Made Fertilizers in Ethiopia* | 30 attendees | Feb. 4, 2016
Featuring: Jessica Davis, Department of Soil and Crop Sciences, CSU.

Featuring: David Riep, Department of Art History, CSU.

*Smart Village Microgrids: Electrification and development for rural villages* | 30 attendees | Apr. 12, 2016
Featuring: Daniel Zimmerle, Senior Research Associate and Director, Electric Power System Laboratory, Energy Institute, CSU.
OPERATIONS
Staff

Jarvis Choury
Fiscal and Operations Manager

Aleta Weller
Research and Outreach Coordinator

Dale Lockwood
Academic Coordinator; Instructor, Department of Biology

Kristin Pintauro
Communications Coordinator

Moira Sharkey
Development Officer

Ryan Deming
Web and Video Coordinator

Craig Starger
Research Liaison Officer, Future Earth Colorado Global Hub

Elizabeth Bach
Global Soil Biodiversity Initiative Executive Director

Laurel Milliken
Information Technology Officer, Future Earth Colorado Global Hub

Emily Taylor
Student Sustainability Center Director

Executive Council

Michele Betsill
Department of Political Science

Thomas Borch
Department of Soil and Crop Sciences

Joe Champ
Department of Journalism and Media Communication

Tom Dean
Department of Management

Brian Dunbar
Institute for the Built Environment

Chris Funk
Department of Biology

Jan Leach
Department of Bioagricultural Sciences and Pest Management
Curriculum Committee

Barry Noon
Department of Fish, Wildlife, and Conservation Biology

Dennis Ojima
Department of Ecosystem Science and Sustainability

Kenneth Reardon
Department of Chemical and Biological Engineering

Elizabeth Ryan
Department of Environmental and Radiological Health Sciences

Dave Thompson
Department of Atmospheric Sciences

Joe Von Fischer
Department of Biology

Kathleen Galvin (Chair)
Department of Anthropology

Brian Bledsoe
Department of Civil and Environmental Engineering

Cynthia Brown
Department of Bioagricultural Sciences and Pest Management

Rich Conant
Department of Ecosystem Science and Sustainability

Angela Acree Guggemos
Department of Construction Management

Nancy Levinger
Department of Chemistry

Dale Lockwood
Academic Advisor, School of Global Environmental Sustainability

Jean Morgenweck
CSU OnlinePlus

Howard Ramsdell
Department of Environmental and Radiological Health

Steven Rosenzweig
Department of Soil and Crop Sciences

Jocelyn Boice
Morgan Library
## Finance Report

### FY 2015-16 BASE BUDGET

<table>
<thead>
<tr>
<th>Budget</th>
<th>Actual Expenses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>$935,314.00</strong></td>
<td>$837,737.35</td>
<td></td>
</tr>
</tbody>
</table>

### Salaries
- Employees - Director, Associate Director, Assistant Directors: $434,386.00
- Employees - staff: $358,318.00
- Postdoctoral Fellow: $45,033.35

**SALARIES TOTAL**: $837,737.35

### Research
- Global Challenges Research Teams: $69,000.00
- Resident Fellows: $17,100.00
- **TOTAL**: $86,100.00

### Sustainability Leadership Fellow Program
- Science Communication Workshop, trainings, year operations and supplies: $28,926.58
- **TOTAL**: $28,926.58

### Education
- GES101, 470, 520 and GES101 Online (professors and TAs, supplies, and trips): $73,745.30
- **TOTAL**: $73,745.30

### Student Sustainability Center
- Salaries: $3,369.53
- Operations and events: $4,576.98
- **TOTAL**: $7,946.51

**PROGRAM ACTIVITIES TOTAL**: $196,718.39

### General Administration
- Supplies: $16,066.02
- Operating charges (events, phone, data, etc.): $21,150.60
- Travel: $34,946.12
- **TOTAL**: $72,162.74

**EXPENSE TOTAL**: $1,106,618.48

### Additional Credits
- 1X monies: $55,000.00
- 1X Tyler Prize gift match from Central: $56,449.48
- Gift for Global Challenges Research Teams from Bohemian Foundation: $20,000.00
- Differential tuition: $18,079.00
- FY15 carryforward: $43,155.00
- **Balance**: $21,379.00

**Dining with Sustainability Series**
- (made possible with gift from Bohemian Foundation): $9,594.78
- FY 2015-16 dinner series expenses: $7,211.14
- **Balance**: $2,383.64
PUBLICATIONS

Associate Director: Peter Backlund

Resident Fellow: Charles Davis

Resident Fellow: María Fernández-Giménez

Visiting Fellow: Karen-Beth Scholthof

Working Group: Conservation Development

Resident Fellow: María Fernández-Giménez

Visiting Fellow: Karen-Beth Scholthof

Global Soil Biodiversity Initiative


GRANTS

GCRT: Food Systems
Jablonski & Carolan: “Rural Wealth Creation: Exploring Food Systems-led Development Strategies”, CSU Office of the Vice President for Research PRECIP ($5,000)

Nogeire, T.: “Is ‘Eating Local’ the Answer? Optimizing Food System Scale to Maximize Conservation Benefits”, American Fellowship, American Association of University Women ($30,000)
INVEST in SUSTAINABILITY

Make a Positive Impact on our Planet’s Future

At the School of Global Environmental Sustainability, researchers and students are working together to address the economic, societal, and environmental dimensions of sustainability. We are documenting the effects of human activities on the Earth’s environment, exploring the consequences of environmental change for individuals and communities, and devising strategies to safeguard natural resources, maintain ecosystem services, and enhance economic vitality. Priorities include:

• Generating new knowledge and partnerships by supporting research teams of faculty from across the University
• Educating the next generation of sustainability leaders through our rapidly growing Global Environmental Sustainability (GES) minor
• Equipping young researchers with communication training that helps them connect with media, stakeholders, and society at large
• Linking disciplines for more complete understanding of sustainability challenges and trade-offs

Your gift can help our School move ahead with developing solutions for today’s problems, anticipating tomorrow’s issues, and laying the groundwork for a truly sustainable future.

For more information about investing in the School of Global Environmental Sustainability, please contact Moira Sharkey, Assistant Director of Development for Research and Interdisciplinary Programs, at (970) 491-3561 or moira.sharkey@colostate.edu. You can also make a gift directly at sustainability.colostate.edu/support.

CONTACT US:

School of Global Environmental Sustainability
108 Johnson Hall
Mailing address: Mail-stop 1036
Fort Collins, CO 80523-1036
Phone (970) 492-4215
Fax (970) 492-4130

INVEST in SUSTAINABILITY

Make a Positive Impact on our Planet’s Future

At the School of Global Environmental Sustainability, researchers and students are working together to address the economic, societal, and environmental dimensions of sustainability. We are documenting the effects of human activities on the Earth’s environment, exploring the consequences of environmental change for individuals and communities, and devising strategies to safeguard natural resources, maintain ecosystem services, and enhance economic vitality. Priorities include:

• Generating new knowledge and partnerships by supporting research teams of faculty from across the University
• Educating the next generation of sustainability leaders through our rapidly growing Global Environmental Sustainability (GES) minor
• Equipping young researchers with communication training that helps them connect with media, stakeholders, and society at large
• Linking disciplines for more complete understanding of sustainability challenges and trade-offs

Your gift can help our School move ahead with developing solutions for today’s problems, anticipating tomorrow’s issues, and laying the groundwork for a truly sustainable future.

For more information about investing in the School of Global Environmental Sustainability, please contact Moira Sharkey, Assistant Director of Development for Research and Interdisciplinary Programs, at (970) 491-3561 or moira.sharkey@colostate.edu. You can also make a gift directly at sustainability.colostate.edu/support.

CONTACT US:

School of Global Environmental Sustainability
108 Johnson Hall
Mailing address: Mail-stop 1036
Fort Collins, CO 80523-1036
Phone (970) 492-4215
Fax (970) 492-4130