



# Center for Biodiversity Outcomes

**Annual Report 2018**



# Our mission and vision

Our mission is to enable the discoveries and **solutions needed to sustain Earth's biodiversity** in a time of rapid biophysical, institutional and cultural change.

We **envision a world where the diversity of life on Earth is valued** and sustained for the benefit of all.

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# Letter from the directors

Earth is experiencing increasingly rapid environmental change with profound ecological and societal consequences. As unprecedented shifts in climates and ecosystems occur, anthropogenic stressors will continue to interact with ecological processes in ways that are poorly understood. Moreover, we face a persistent gap between the science of conservation and the application of this knowledge to policy and decision-making. Arguably, conservation science is not keeping pace with the increasing threats to, and loss of, biodiversity.

Preparing for these environmental changes requires new institutional models that not only cultivate novel insights and discoveries, but do so in the context of achieving conservation outcomes. Historically, academics have remained in ivory towers, NGOs have responded to crises and there has been little cross-fertilization of respective capacities. Though scientists, governments, businesses and communities are working to protect biodiversity and there are conservation successes, conservation is not making headway fast enough, or broadly enough, to stem the overall trend of biodiversity loss. This is not because we lack answers, but because we are not working together in ways that can effectively address biodiversity loss in a rapidly changing world.

Arizona State University's Center for Biodiversity Outcomes seeks to overcome the pervasive research-action gap in conservation science. By establishing and testing new models for academic engagement, we are hopeful that our efforts will produce evidence-based outcomes that may be more broadly applied. Thus, while we focus primarily on achieving outcomes to the most pressing environmental challenges of our time, we are also pioneering new models of engagement based on our experimental learning. We hope our foray into the unknown will yield insights for other scientists and decision-makers to think outside the conventional envelopes of historical states and resource-management practices.



**Leah Gerber**  
Founding Director



**Beth Polidoro**  
Deputy Director



**Abigail York**  
Associate Director  
of Social Science



**Samantha Cheng**  
Associate Director  
of Conservation  
Evidence



# Meet the team

## → Leadership



**Leah Gerber**  
Founding  
Director



**Beth Polidoro**  
Deputy  
Director



**Abigail York**  
Associate  
Director of  
Social Science



**Samantha Cheng**  
Associate Director  
of Conservation  
Evidence

## → Administrative Staff



**Anahi Astudillo**  
Business Operations  
Specialist



**Linda David**  
Administrative  
Assistant



**Amy Scoville-Weaver**  
Project Manager

## → ASU-Conservation International Professors of Practice



**Jorge  
Ahumada**



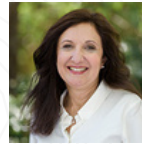
**Dave  
Hole**



**Miroslav  
Honzak**



**Jack  
Kittinger**



**Rosimeiry  
Portela**



**M.  
Sanjayan**



**Percy  
Summers**

## → Postdoctoral Research Associates



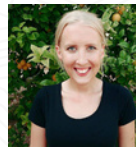
**Elena  
Finkbeiner**



**Gwen  
Iacona**



**Kelly  
Gravuer**



**Krista  
Kemppinen**



**Lars  
Iverson**



**Aireona  
Raschke**

## → Graduate Student Support

- Marielle Abalo
- Katje Benoit
- Miranda Bernard
- Ute Brady
- Heather Coates
- Keshia Cummings
- Sarah Geren
- Linda Howard
- Tiffany Lewis
- Mar Mancha-Cisneros
- Reyna Olvey
- Chandra Pallavi
- Christina Schmitt
- Zafir Somani

## → Consultants

- Robert Lasaz
- Penny Langhammer
- Rachel Neugarten
- Gail Petersen



# Our approach

## Actionable science

The center has three dynamically integrated areas of operation: **education**, **research** and **partnerships**. Our actionable science model bridges academia and stakeholders to produce biodiversity conservation science that informs decision-making at local, national and global scales.

As we implement this novel approach we strive to continuously improve it, aiming to develop a replicable and scalable model for other institutions to implement around the globe.



Figure 1. Our actionable science model

## Research

We produce insights that transform the way the world thinks about, values and manages biodiversity. We facilitate actionable science for biodiversity conservation via:

**Evidence, metrics and monitoring:** Empirical support for measuring impact and evaluating outcomes, training and capacity building for what is evidence and how can it be used.

**Decision science and data tools:** Creating tools to support evidence-based decisions, working with decision-makers on defining needs for knowledge and decision-making structures (e.g. engaging with businesses), conducting research into how to translate knowledge into action.

**Stakeholder engagement:** Connecting students and faculty with strategic partners, decision-makers and practitioners.

Projects and activities derive from these three approaches and often overlap one another. For example, the development and implementation of a sustainable fisheries decision-making tool involves all three.



## Education

We draw on the intellectual firepower of ASU to train the next generation of conservation leaders. A key aspect of their training includes practicing communicating with non-specialized audiences to increase influence and reach.

ASU faculty and graduate students work in collaboration with other academic institutions to frame problems into workable scientific research questions, to build teams of researchers and to apply existing scientific knowledge to the problems identified by practitioners.

## Partnerships

We engage partners from the NGO, corporation and government sectors to apply innovative research results to achieve real-world change. Our research operates on a need-driven model — informed by our partners and the pressing conservation challenges we face.

**NGOs:** NGOs focus on action. Universities focus on learning. Together we co-create solutions to pressing biodiversity issues. Often times, NGOs lack the time and resources needed to stay abreast of cutting-edge scientific research.

**Corporations:** Many companies lack the data, expertise and incentive to rigorously consider biodiversity in operations. Biodiversity materiality represents an enormous risk for companies, but is difficult to quantify. Companies need access to data and support to ensure they have the expertise to implement effective biodiversity management plans across their operations and value chains.

**Governments:** Sound environmental policy requires not only cutting-edge scientific data and expert analysis, but also the ability to translate science into meaningful real-world decisions.

CBO helps fill these gaps by facilitating:

- executive education
- decision-making tools
- tailored research
- network of 10,000+ scientists representing hundreds of organizations in more than 160 countries
- specialized monitoring tools
- multidisciplinary data analyses
- access to state-of-the-art remote sensing and data management technologies
- access to hundreds of affiliated faculty
- online courses, certification programs and user-defined decision-making tools



# Guiding values

We embrace the plurality of values that different communities can ascribe to biodiversity, ranging from the economic to the cultural, as well as the intrinsic value of biodiversity. This approach requires a multi-stakeholder and interdisciplinary approach to define the “solution space” for the biodiversity outcomes we seek to achieve.

Furthermore, our values are aligned with those of The New American University, Arizona State University's reconceptualization of 21st century higher education. This new concept focuses on the inclusion and success of all its students, as well as social responsibility to the communities ASU serves.

Access	Impact	Excellence
<ul style="list-style-type: none"><li>• <b>Engagement of stakeholders and decisionmakers</b></li><li>• <b>Inclusivity and diversity</b></li></ul> <p>Biodiversity conservation solutions require diversity of knowledge. To elevate biodiversity knowledge and its applicability, we champion educational inclusion and diversity at ASU. We collaborate with stakeholders and decision-makers from multiple knowledge bases including business, government, management, academia, community and nonprofit sectors.</p>	<ul style="list-style-type: none"><li>• <b>Focus on human and ecosystem well-being</b></li><li>• <b>Solution-oriented</b></li></ul> <p>We conduct solution-oriented research that can be applied in the real world for measurable and positive biodiversity outcomes. We work toward both localized change and global transformation in biodiversity thought and action.</p>	<ul style="list-style-type: none"><li>• <b>Innovation</b></li><li>• <b>Transdisciplinary</b></li></ul> <p>Successful biodiversity outcomes require change in the solutions we apply and in the way we collectively approach conservation. The center's novel approach to collaborative conservation inspires creative biodiversity solutions and collaborative processes. It has the potential to transform the way different sectors work together to drive biodiversity outcomes. Our reflective processes ensure that we continue to improve the way we do conservation.</p>

# #1 in the U.S. for innovation 4 years in a row



*For the fourth year in a row, ASU has been named the most innovative school in the nation, recognizing the university's culture of groundbreaking research and partnerships, as well as its commitment to helping students thrive in college and beyond.*

## Accomplishments at-a-glance

### Goal and metrics

#### Cultivate existing and secure new **knowledge partnerships**

Establish mechanisms to implement a shared strategic action plan between WBCSD and ASU to advance partnership across multiple work streams, with a focus on raising funds.

Build out the CI professors of practice program over FY18 and continue to advance three outcome goals.

Explore relationship with The Nature Conservancy to advance a formal partnership

Establish the ASU Red List Training Center in Life Sciences-Wing C, Room 286, training at least 8-10

## Partnerships

### Accomplishments

Continued to advance our core knowledge partnerships while embracing new collaborations. This includes:

- Continued to advance our core knowledge partnerships while embracing new collaborations. This includes:
- Strengthened our relationship with Conservation International by launching a shared website, teaching 38 students in the Conservation in Practice course taught by all six professors of practice, hosting five guest lectures and five public talks by CI scientists, and organizing and hosting the second ASU-CI Annual Retreat.
- As part of our knowledge partnership with International Union for the Conservation of Nature, we officially launched the IUCN Red List Training Center in October and trained more than 30 students, scientists and international partners on the IUCN assessment process. In addition, we certified an additional 10 scientists and students as official IUCN trainers.
- Launched our new partnership with Chemonics to establish the Conservation Solutions Lab – a joint collaboration aimed at developing evidence-based approaches for community engagement in biodiversity conservation.
- Officially partnered with the Smithsonian Tropical Research Institute to strengthen research collaboration in the areas of tropical science and conservation among faculty and students.
- A CBO-supported student provided critical research work for the Natural Capital Coalition by reviewing existing biodiversity assessment tools and identifying gaps and strengths.

## Research

### Accomplishments

- Produced approximately two dozen representative publications and reports.
- Defined three focal areas driving CBO research and hosted a three-part seminar series attended by 45+ students and faculty where concrete examples were provided of hands-on implementation with our partners.





## Goals and metrics

### Advance research, education and decision-making initiatives

Engage and hire more student researchers and postdoctoral researchers working to advance critical biodiversity research outcomes.

Develop and implement an effective faculty affiliate engagement strategy designed to bring in core faculty whose research aligns with the center's mission and vision.

Double the number of research publications from FY17 and ensure the center is in author affiliations and acknowledgments (track accordingly).

Develop a U.S. Agency for International Development-funded certificate degree in bio-enterprise in the Amazon.

Launch Environmental Communication and Leadership Certificate in fall 2017 with 10 students registered by year-end.

Develop a non-degree executive education program focused on training for companies, to be delivered in three webinars over FY18.

In addition to the initiatives highlighted in this seminar series, the team advanced research in the following projects:

- Reviewed major wild fisheries certification criteria from a natural capital framework to identify a more holistic assessment of fishery impacts on ecosystems.
- Scoped and coded over 200 sustainability reports from the world's leading companies to understand how biodiversity is accounted for and conserved.
- Assessed the public value of conservation to move from conservation evidence to tangible outcomes via knowledge partnerships.
- Advanced research linking governance theories with biodiversity conservation.
- Studied how soil organisms adapt to climate change to support agricultural practices.
- Assessed the role natural capital plays in achieving the UN's Sustainable Development Goals.

## Education

### Accomplishments

- Launched the Environmental Communication and Leadership Graduate Certificate and continued promotion throughout all ASU campuses.
- Renewed collaboration with The Nature Conservancy to offer the NatureNet Science Fellowship to Danica Schaffer-Smith, 2018-2020, to examine the effects of increased vegetation density on downstream water quality in the Cape Fear Watershed in North Carolina. Represented CBO during ASU Female Directors Convening in partnership with the Center for Gender Equity in Science and Technology.
- Participated in ASU Open Door, facilitating hands-on activities to visitors of all ages on rainforest conservation and the importance of soil microorganisms.
- Continued participation in ANGLES, a network of higher education professionals dedicated to a sustainable future and engaged in graduate student leadership.
- Published Science paper on the need for inclusion for diverse participation in STEM higher education and careers.

## Decision-making

### Accomplishments

Partnered with the [National Socio-environmental Synthesis Center](#), the [U.S. Fish and Wildlife Service](#) and other academic institutions to develop the Recovery Prioritization Explorer. This tool will help frame budgetary requirements and objectives to support comprehensive species recovery in compliance with the U.S. Endangered Species Act.





## Marketing and communications

### Goal and metrics Revamp marketing and communications

Finalize and launch consistent center differentiation and leadership message and update all digital and print media accordingly, in addition to training team to use improved language.

Create and implement a communication strategy designed to highlight thought leadership and garner external awareness of center (e.g. monthly center e-newsletter, revamp affiliated research labs' websites). This is intended to crystallize what we do and why.

Organize and grow internal and external distribution lists to support marketing and communication efforts.

## Operations

### Goal and metrics

### Continue to streamline operations

Finalize operational manuals

- Secured two additional grants to develop similar ESA compliance tools for Monsanto and the Electric Power Research Institute. Postdoctoral Research Associate Gwen Iacona will spearhead these projects.
- Leah Gerber and consultant Penny Langhammer, along with government officials, facilitated a workshop in Canada to explore potential applications of the global Key Biodiversity Areas, standard for achieving Canada's **2020 Biodiversity Goals and Targets**. This workshop is part of the KBAs and Ecosystem Services project launched in FY16 with the Science for Nature and People Partnership. In FY19, a report will be published in collaboration with the **IUCN's World Commission on Protected Areas** summarizing findings and serving as a guide in assessing ecosystem services within important sites for biodiversity and conservation around the world.

## Accomplishments

### Social media:

- Twitter: 127 new visitors (42.2% increase from FY17). 4,652 profile visits (258.1% increase from FY17). 228,940 impressions (similar to FY17). Annual engagement rate was 0.087% (0.025% above higher education and 0.032% more than nonprofits averages for 2018). Facebook and YouTube accounts were created. Number of followers growing slowly, steadily.

### Website:

- Number of users and sessions more than doubled from FY17. FY18 numbers were 11,447 and 17,470 respectively. 11,274 of total visitors were new to the site.

### Communication strategy:

- Continued to work with strategic consultant Robert Lalasz to increase the effectiveness of the center's communications with the goal of attracting new collaborators and funders. A message house was created, promotional materials were updated accordingly to highlight the benefits and solutions offered by CBO to partners at various levels of engagement.
- Cleaned up and expanded distribution lists for easier access and reach.

## Accomplishments

- Led major improvements to filing and tracking systems covering all aspects of the center (e.g. finances, marketing, communications, fundraising, events), while streamlining operations and helping document CBO's impact and operations via user manuals.



(administrative, finance, HR, marketing and communication, travel and technology) to serve as training and reference tools for staff and student workers and to ensure compliance with ASU policies.

Revamp digital and hard-copy filing systems to streamline information sharing and center documentation.



### Goal and metrics Increase funding

Submit grant and philanthropic requests adding up to at least \$60,000,000. At least \$5,000,000 in proposals will be submitted to advance the MacArthur's 100&Change market-based approach on sustainable biodiversity project.

Raise \$350,000 for operational costs.

Develop the ASU-CI philanthropic strategy to serve as a model for future philanthropic initiatives.

- Successfully prepared and trained for transition to Workday, the university's new financial management system. Welcomed
- Assistant Research Professor Samantha Cheng as AD of Conservation Evidence, Research Analyst Aireona Raschke to work on the Conservation Solutions Lab, two postdoctoral research associates in partnership with Conservation International, eight student workers and three volunteers.
- AD of Social Sciences Abigail York transitioned out of her role, as did Program Manager Amy Scoville-Weaver, who now helps manage the Conservation International partnership with the Office of Knowledge Enterprise and Development.

### Events:

- Organized, hosted and participated in 29 events, including two keynote presentations, one Hugh Hanson seminar, 17 workshops or symposiums, two faculty and student meet-and-greets, nine ASU partner events and one external event.
- Keynote presentations:
  - In collaboration with [Plea for the Sea](#) and [Lightkeepers Foundation](#) we hosted the first public conversation about the plight of the critically endangered vaquita, followed by a special film screening of the original documentary, [Souls of the Vermilion Sea](#). This was the
  - first public live-streamed event done by the university. Welcomed CI CEO M. Sanjayan for a public talk on the importance of nature, and worked with the ASU President's Office to host him as a keynote speaker with Dr. Crow at the President's Club Spring Celebration Fireside Chat.

### Funding

#### Accomplishments

- Submitted for \$62.6 million in external funding, including grants and philanthropic support, exceeding our \$60 million goal.
- Awarded \$3.3 million to support affiliated biodiversity conservation research projects and decision tools for effective water management, increase participation of women in academic science and engineering careers, mitigate microplastics pollution in oceans and study nutrient pollution risks associated with intensified agriculture (e.g. concentrated animal feeding operations) under increased flooding and hurricanes.
- Of the \$62.6 requested to external sources, we are pending response for \$4.6 million in proposals submitted in late FY18.

# Partnerships

## Conservation International



Conservation International works in more than 30 countries across six continents to create solutions that protect the nature people rely on for food, fresh water and livelihoods, through an innovative blend of science, policy and partnerships.

The ASU-CI knowledge partnership is designed to deliver transformative and measurable outcomes across three goals:

- protecting 1 million hectares of natural capital
- transitioning 100 million food producers to sustainable methods
- training the next generation of conservation leaders

The center was thrilled to start the first ASU-CI joint course titled *Biodiversity Conservation in Practice*, with a total enrolled class of 37 undergrad and graduate students across the *School of Sustainability* and *School of Life Sciences*. Co-taught by six *professors of practice* and managed by Project Manager *Amy Scoville-Weaver*, this course granted students the unique opportunity to learn from global field practitioners to better understand the opportunities and challenges conservation organizations face. The center looks forward to offering it again in spring 2018.

In order to promote the partnership, a joint ASU-CI website was created. The site is regularly updated with blog posts, videos and other relevant content: [conservation.org/asu](https://conservation.org/asu)

To celebrate the pilot year of the partnership and plan for the future, the center hosted the Second ASU-Conservation International Annual Partnership Meeting on April 23-26, 2018 at ASU Tempe. The retreat was attended by CI CEO M. Sanjayan, CI Moore Center leadership and administrative staff, and the six professors of practice.

Numerous events were held in addition to a full day of evaluation and strategic planning for the partnership writ large. Sanjayan gave a public talk titled "Can nature save us? Stories from the natural world" and was also the keynote speaker on the ASU President's Fireside Chat Spring Celebration (see events section).

To achieve the goals of the partnership, we developed a fundraising strategy with the ASU Foundation. The professors of practice will submit additional collaborative proposals of at least \$1 million each year. Since this partnership was launched in September 2016 by CBO, it has grown into a keystone university- wide collaboration. To continue supporting its growth, management of the partnership transitioned to the Office of Knowledge Enterprise and Development – Corporate Engagement and Strategic Partnerships in late FY18.

CBO will continue to play a pivotal role in its success by supporting professors of practice engagement, training affiliated students and postdoctoral research associates, facilitating faculty and CI scientist collaborations, providing operational and communications support, and continuing to study and scale up the partnership so it can serve as a replicable model for other cross-sector collaborations

Video available at: <https://bit.ly/2Od7ayO>



## The Earth Genome



The Earth Genome is new NGO that seeks to bring large and complex scientific data to support decision-making that preserves the environment, while averting economic and social disruptions caused by mismanagement of natural resources.

The center has partnered with EG, the ASU Future H2O Center, the World Business Council on Sustainable Development and other corporate partners to create the first tool focused on revealing options for corporate decision-making on water use. This tool, called the Green Infrastructure Support Tool, was piloted in the Brazos River Basin in Texas. It has received overwhelmingly positive feedback and is expected to soon cover the United States, Mexico and Canada as it is rolled out globally. At present, we are exploring ways to broaden the tool to more broadly incorporate biodiversity and ecosystem services.

## IUCN Red List of Threatened Species



The International Union for the Conservation of Nature Red List of Threatened Species is the world's standard for quantifying species extinction risks and is used around the world to inform policy, planning and conservation action. It includes details on threats to species, their ecological requirements, geographic distribution and information on how to reduce or prevent extinctions.

The IUCN Red List of Threatened Species Partnership is a selective group of ten international institutions. ASU is one of only three university partners in the world to join forces in guiding the scope and application of scientific data for global and national biodiversity conservation. Through this partnership, we are devising strategies for species conservation and biodiversity decision-making. This partnership is led by CBO Deputy Director Beth Polidoro.

The week of October 13-18, 2017 Polidoro helped to facilitate two IUCN Red List training and certification workshops for 40 people from across the United States and Latin America, in collaboration with the IUCN Red List Unit.

The IUCN Red List Undergraduate and Graduate Student Research Group at ASU also completed the final extinction risk assessments of the world's 900 species of eels, which will be published on the IUCN Red List of Threatened Species website in November 2018. Under the guidance of Dr. Polidoro, this team is also working to develop a global typology for classifying the world's marine ecosystems to be used by the IUCN Red List of Ecosystems and for continuing extinction risk assessments for the world's coral reefs.

In collaboration with Friends of the Sonoran Desert, CBO helped to establish the new IUCN Species Survival Commission Sonoran Desert Plants Specialist Group. This new group, co-chaired by Helen Rowe of the Sonoran McDowell Conservancy, will work with CBO to assess more than 4,000 Sonoran Desert plants for the IUCN Red List and to create comprehensive conservation plans for Sonoran Desert ecosystems. This work is being spearheaded by Linda Howard, a new PhD student in Plant Conservation in the School of Life Sciences.

## The Natural Capital Coalition



The **Natural Capital Coalition** is a unique global multi-stakeholder collaboration that brings together leading initiatives and organizations to harmonize approaches to natural capital.

In June 2017, the center joined other 250 NCC member organizations dedicated to protecting natural capital and ensuring sustainability.

In November 2017, NCC published a Responsible Business Report, which was included in the print edition of The Times with a circulation of over 1.05 million readers in the UK. The report is available at: <https://bit.ly/2jRLrCc>

## World Business Council on Sustainable Development

As a member, the center is working with NCC to develop biodiversity and marine supplements to the **Natural Capital Protocol**. This partnership complements existing partnerships with WBCSD and Conservation International, informing a standardized approach to measuring natural capital. In FY18, a center-supported student, Kesha Cummings, provided critical research work for the NCC by reviewing existing biodiversity assessment tools and identifying gaps and strengths.



The **World Business Council on Sustainable Development** is a global, CEO-led organization of more than 200 leading businesses and partners working together to accelerate the transition to a more sustainable world.

In October 2017, Founding Director **Leah Gerber** represented the university at the **WBCSD** 2017 Council Meeting in Mexico City. With representatives from Yale, Monterrey Tech, Environmental Resources Management and Solvay, Gerber participated in a panel cultivating talent and leadership between academic and industry sectors. There was tremendous enthusiasm among the approximately 50 participants, who aspire for collaborative online learning platforms. Due to changing internal structures within WBCSD, the center has transitioned from a knowledge partner to an implementation partner. The center looks forward to continuing its engagement with the world's leading companies in corporate sustainability and working with WBCSD in future efforts.





## Chemonics International



**Chemonics International** is a private international development company that works for donors and the private sector to manage projects in developing countries. Their mission is to promote meaningful change around the world to help people live healthier, more productive and more independent lives.

The center is thrilled to announce the new Conservation Solutions Lab, a joint collaboration between ASU and Chemonics International, aimed at developing evidence-based approaches for community engagement in biodiversity conservation. Bringing together multidisciplinary scientists with conservation and development practitioners, the CSL aims to (1) assess the effectiveness of community engagement approaches and (2) apply this insight to aid practitioners in choosing and implementing cost-effective approaches and robustly evaluate impacts.

In May 2018, a planning workshop was held by CSL co-directors Samantha Cheng (ASU-CBO) and Michael Brown (Chemonics) and attended by key ASU faculty and Chemonics practitioners who are experts in the fields of biodiversity conservation and community engagement. This workshop outlined the first two phases of the partnership, which includes collating a global evidence base and then developing empirically-based theories of change to be tested and validated in order to provide clarity on pathways for program design, implementation, monitoring and adaptive management. A research analyst was hired to advance Phase One through February 2019. Immediate tasks will be to submit fundraising proposals to support future workshops and hire a full-time research analyst.

## Smithsonian Tropical Research Institute



The Smithsonian Tropical Research Institute was founded with the purpose of increasing and sharing knowledge about the past, present and future of tropical ecosystems and their relevance to human welfare.

CBO joined other ASU units to launch a five-year collaborative research initiative in partnership with the **Smithsonian Tropical Research Institute** in Panama.

This new ASU-STRI effort follows a successful earlier partnership that finished in 2015. The new partnership aims to cultivate a shared research agenda to understand and manage human and ecological systems in the tropics and to train the next generation of tropical scientists. Specific research foci include (1) resilience, adaptive evolution and the effects of changing environments on plant, animal and microbial phenotypes, and community and ecosystem functions; (2) integrating biological data with socio-economic models to sustain biodiversity during climate change and human development. To support these initiatives, internal proposals for funding were accepted during summer 2018. In particular, funding will support travel for team building visits (\$3-4K), workshops (\$20K) and annual pilot data collection projects (\$50K).

### **Featured story: “A new bond between public and universities could brighten America’s future”**

A May 2018 Associated Press article written by University of Southern California Dean Amber Miller highlights CBO as an example of innovative partnerships born within universities with the potential of solving society's most unsettling problems. Miller emphasizes the instrumental role university leadership plays in supporting internal initiatives that produce independent-minded research and educated leaders capable of actively contributing to the good of society. Full story:

<https://bit.ly/2xa7FU1>

# Research

In spring, we hosted a three-part seminar series attended by a cumulative 45+ students and faculty. The series highlighted the three focal areas driving the center's research strategy, while providing case statements to illustrate its applications. The three focal areas, as previously described, are (1) stakeholder engagement; (2) biodiversity evidence, metrics and monitoring; (3) decision science.

In addition to the initiatives highlighted in this series, the team conducted research to advance the following center-affiliated projects:

- Reviewed major wild fisheries certification criteria from a natural capital framework to identify a
- more holistic assessment of fishery impacts on ecosystems.
- Reviewed and coded over 200 sustainability reports from the world's leading companies to
- understand how biodiversity is accounted for and conserved.
- Assessed the public value of conservation to move from conservation evidence to tangible
- outcomes via knowledge partnerships.
- Advanced research linking governance theories with biodiversity conservation.
- Studied how soil organisms adapt to climate change to support agricultural practices.
- Assessed the role natural capital plays in achieving the UN's Sustainable Development Goals.

## Representative publications and reports

Alvarez-Romero, J. G., Munguia-Vega, A., Beger, M., **Mancha-Cisneros, M. M.**, Suarez-Castillo, A. N., Gurney, G. G., Pressey, R. L., **Gerber, L. R.**, Morzaria-Luna, H. N., Reyes-Bonilla, H., Adams, V. M., Kolb, M., Grapham, E. M., VanDerWal, J., Castillo-Lopez, A., Hinojosa-Arango, G., Petatan-Ramirez, D., Moreno-Baez, M., Godinez-Reyes, C. R., & Torre, J. (2017). **Designing connected marine reserves in the face of global warming.** *Global Change Biology*, 24(2):e671-e691.

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Chandler, P., Strickland, L. R., Alia, E., Blonder, B., Klein, E., Kohl, M. T., McGee, E., Quintana, M., Ridley, R. E., Tellman, B., **Gerber, L. R.** (2017). **Without inclusion, diversity initiatives may not be enough.** *Science*, 357(6356):1101-1102.

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**Featured story: ASU-CI partnership in action in the world's epicenter of biodiversity**

<https://sustainability.asu.edu/biodiversityoutcomes/news/archive/asu-ci-partnership-in-action-in-the-worlds-epicenter-of-biodiversity/>

## Education and diversity

Fostering diversity within the conservation space is a core value of the center. We are pleased to continue collaborations with internal and external partners in engaging new minds and talent to arrive at innovative solutions for the future.

### Graduate Certificate in Environmental Communication and Leadership

Students may now apply directly for consideration for the **ECL Graduate Certificate** launched in fall 2017. This certificate is designed to train graduate students in science-based fields to effectively communicate their findings to public audiences and decision makers. The center is currently marketing this certificate across all campuses.

### The Nature Conservancy NatureNet Science Fellowship

The center is pleased to announce the renewal of its collaboration with **The Nature Conservancy** to offer the NatureNet Science Fellowship. ASU joins Cornell, Columbia, Princeton, Stanford, Yale and University of Pennsylvania with a shared goal of supporting early career scientists to conduct research at the interface of science, technology and business to achieve biodiversity outcomes.

We welcomed Danica Schaffer-Smith, our 2018-2020 fellow. She will utilize data methods to examine the effects of increased vegetation density on downstream water quality in the Cape Fear Watershed in North Carolina. She will be mentored by ASU faculty Daoqin Tong and Soe Myint with the School of Geographical Sciences and Urban Planning and Rebecca Muenich with the School of Sustainable Engineering and the Built Environment.

NatureNet Fellow Kelly Gravuer joined the team in September 2016 and concluded her fellowship in September 2018. Gravuer investigated how food production areas can assist in climate mitigation, while continuing to support other important goals such as biodiversity conservation and water quality. She completed a number of research projects, including a greenhouse project involving multiple ASU undergraduates and a survey of agricultural professionals to investigate challenges and opportunities in the adoption of new practices. Her projects involved collaborations with teams at TNC, as well as with other conservation practitioners and academics through the Science for Nature and People Partnership. This past year, Gravuer also presented her work at the Ecology of Soil Health Summit and co-developed outreach activities for ASU's Earth & Space Exploration Day. During her time at CBO, Gravuer was primarily mentored by Associate Professor Heather Throop, with additional mentorship from Associate Professor Hallie Eakin and Professor Scott Collins.

Learn more: <https://bit.ly/2B0N9J2>

## Broadening diversity in conservation science

Fewer young people are pursuing conservation science degrees and working in their professions after graduation — even as platforms to increase diversity persist.

To explore what is behind this disconnect, Leah Gerber and graduate student affiliate Beth Tellman from the School of Geographical Sciences and Urban Planning organized a panel titled “Expanding diversity in the next generation of ecology” in August 2015. This event attracted dozens of minority students who shared their insights and experiences, leading to a Science paper published in September 2017 titled “Without inclusion, diversity initiatives might not be enough.”

**Featured story:** <http://science.sciencemag.org/content/357/6356/1101>

To address this need, the Center for Biodiversity Outcomes is developing novel education programs that provide environmental and ecological sustainability literacy focused on underrepresented youth.

Its proposed Diversity in Biodiversity Science program expects to engage undergraduate and graduate students, develop its diversity network at ASU through campus engagement events and work with non-profit partners to deepen the connections with high schools.

The center is collaborating with the ASU Center for Gender Equity in Science and Technology to develop a university wide summer STEM diversity program, of which conservation science will be one focus.





**“Concurrently, we are developing partnerships with The Nature Conservancy and Conservation International to target underserved youth, specifically in Arizona schools, and get them into ASU where we can mentor them through the program,”** explains Gerber.

Gerber currently leads the center's education and diversity efforts, but the opportunities in this area exceed its capacity to engage. The center is currently seeking \$25-50,000 to develop the program framework.

Committing institutional support, programs and resources to diversity and inclusion will continue to allow ASU to identify promising underserved high school students, recruit them, mentor them and provide professional opportunities with conservation organizations, leading into successful and impactful careers in conservation science and policy.

## ANGLES

Associate Director of Social Sciences Abigail York continues to represent multiple ASU programs with ANGLES, a nonprofit organization committed to providing opportunities for sharing best practices and curriculum development for graduate students across various institutions and universities. This unique networking opportunity has allowed us to promote CBO's Environmental Communication and Leadership Graduate Certificate and collaborate in upcoming National Science Foundation Research Traineeship Program proposals.



ANGLES is a network of higher education professionals dedicated to a sustainable future and engaged in graduate student leadership. This student-focused organization fosters inclusivity and diversity, while supporting graduate students in developing deep expertise and leadership skills for the ever growing number of career paths. Learn more: [anglesnetwork.com/whoweare/](https://anglesnetwork.com/whoweare/)





## Faculty engagement

Because innovative solutions require diverse perspectives, the center partners with a variety of faculty from across the university to conduct research that sheds light in biodiversity conservation issues. The center currently has 125 affiliated faculty.

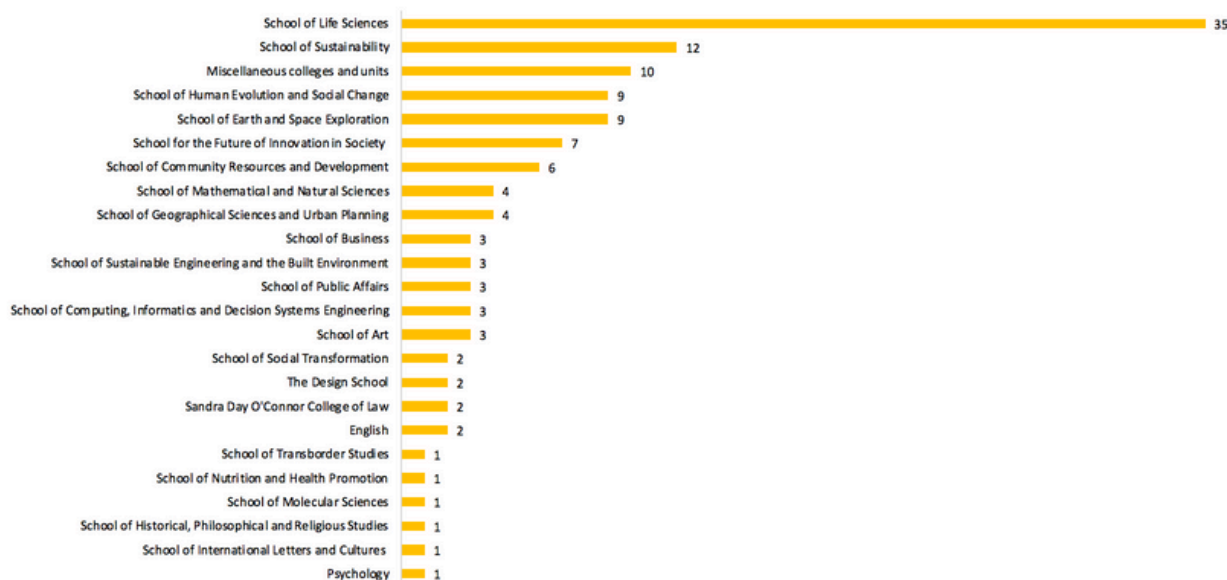


Figure 3. Faculty affiliates representation by school

In FY18, we sent a survey to all our faculty affiliates to gather feedback on how to best collaborate in advancing our research, and programmatic and educational agendas. This survey was filled out by 12% of all affiliates and asked a variety of questions exploring the utility of center affiliation and what would help increase collaboration. The majority of respondents indicated “networking” as a main driver for being affiliated and requested more events that would increase these opportunities. They also expressed interest in connecting to CBO external partnerships.

As a result, a Faculty Affiliate Welcome Package was created and shared with all affiliates in May 2018. The packet addresses their requests and serves as a clear guide of what it means to be affiliated — both benefits and expectations. We are pleased to offer a variety of resources for faculty affiliates to encourage increased participation, including increased access to established partnership networks, promotion of relevant scholarly activity via CBO media, and logistical and program management support.

Additionally, the latter half of FY18 focused on hosting events targeting faculty (see events section for a comprehensive list).

### Featured story #1: Faculty Affiliate Spotlight

<https://sustainability.asu.edu/biodiversityoutcomes/news/archive/faculty-affiliate-spotlight/>



Video available at: <https://bit.ly/2NbjR0D>

### Featured story #2: ASU faculty helps develop sustainable tourism in Indonesia

<https://sustainability.asu.edu/biodiversityoutcomes/news/archive/asu-faculty-helps-develop-sustainable-tourism-in-indonesia/>

## Student engagement

Since the center was founded in 2015, we have completed 34 student hires from six different schools throughout the university. Our students engage in a variety of projects ranging from scientific research to events and communications support. We assign students to projects that align with their career interests so they can gain hands-on experience, hone their transferable skills and learn to network with professionals in their fields to gain a competitive advantage for employment and further development.

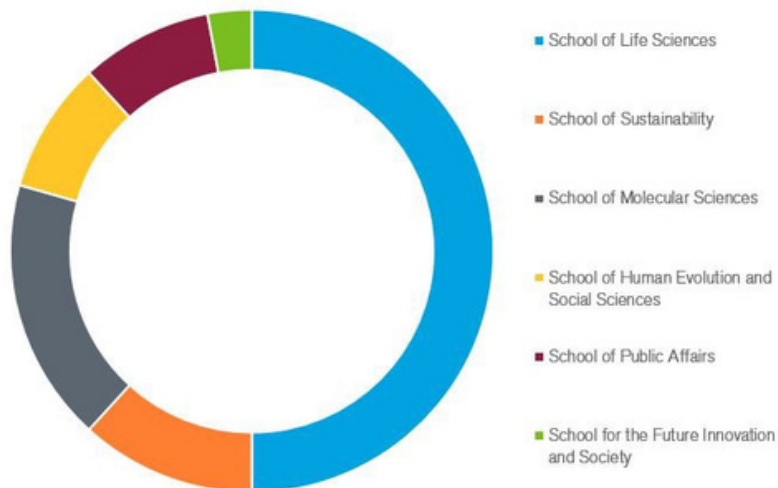


Figure 4. Student workers engagement by school, FY15-FY18



**Featured story  
(written by CI):  
To tackle  
environmental  
challenges, start  
with students**

[https://blog.conservat  
ion.org/2018/04/to-  
tackle-environmental-  
challenges-start-with-  
students/](https://blog.conservat<br/>ion.org/2018/04/to-<br/>tackle-environmental-<br/>challenges-start-with-<br/>students/)

## Nature at ASU

The center signed an official memorandum of understanding with **Nature at ASU**, an undergraduate student club designed to connect students across all campuses with biodiversity conservation networking and career opportunities. The center will work with club representatives to host office hours and help facilitate website and media coverage.



# Decision-making

As a science-driven center, our work is guided by academic inquiry and innovation across disciplines. We use our expertise in biodiversity to craft and inform a host of tools designed to guide decision makers working in the public, private and nonprofit sectors.

We facilitate research driven by institutions' feedback on what they lack and what we know needs further exploration.

We tailor, package and deliver these insights in the form of guidelines, publications, decision tools and data. Our capacity is bolstered by our network of over 10,000 scientists representing hundreds of governmental, academic and conservation organizations in more than 160 countries.

## Recovery Prioritization Explorer

The Center for Biodiversity Outcomes partnered with the **National Socio-environmental Synthesis Center (SESYNC)**, the **U.S. Fish and Wildlife Service** and other academic institutions to develop a decision **tool** to help frame budgetary requirements and objectives in ways that best support comprehensive species recovery. The tool, named Recovery Prioritization Explorer, serves two primary purposes: (1) communicate expected recovery outcomes on national budgets; (2) support discussion of recovery priorities and budget allocations.

The **Endangered Species Act of 1973** works to protect **over 2,000 species**. Each of these species requires its own **species recovery plan**. Unfortunately, even though many species have been saved, limited funding jeopardizes the more than 1,000 species recovery plans currently in existence.

The hope is that greater transparency yield by this tool would translate to increased funding to support endangered species recovery efforts. The tool also provides an opportunity for stakeholders (federal, district, field-office and community members) to have open conversations to continue informing the decision-making process.

The tool is available at: <https://shiny.sesync.org/apps/RecoveryExplorer/>



SESYNC brings together the science of the natural world with the science of human behavior and decision-making to find solutions to complex environmental problems. Learn more at [sesync.org](https://sesync.org).



## More Endangered Species Act compliance tools on the way

Building on the Recovery Prioritization Explorer tool, CBO secured two grants from Monsanto and the Electric Power Research Institute to develop tailored tools to support Endangered Species Act compliance.

These tools will include an evidence-based comprehensive framework for assessing pre-compliance and compliance costs. They will not only provide critical value to decision-making in the private sector (e.g. cost-efficiencies, reduction of regulatory risk, enhanced stakeholder reputation), but will also increase awareness of sustainable practices.

Conservation scientist Gwen Iacona will spearhead these projects. She will be hired in FY19 as a postdoctoral research associate. Iacona has a PhD from the University of Florida and postdoctoral experience at the University of Queensland. She brings extensive experience in quantitative ecology and structured decision-making for conservation science. We look forward to welcoming her aboard!



Monsanto is a global agriculture company with the mission of developing products and tools to help farmers grow crops while using energy, water and land more efficiently.



The Electric Power Research Institute provides thought leadership, industry expertise and collaborative value to help the electricity sector identify issues, technology gaps and broader needs that can be addressed through effective research and development programs for the benefit of society.

## Key Biodiversity Areas and Ecosystem Services

As part of the [Science for Nature and People Partnership \(SNAPP\) working group on Key Biodiversity Areas](#), Leah Gerber and research consultant Penny Langhammer hosted an ecological science workshop with the Canadian Council on Ecological Areas on November 7-10, 2017 in Quebec City.

The workshop brought together international and Canadian scientists; Canadian federal, provincial and territorial protected areas and conservation agencies; experts in Aboriginal and community land-use planning; national and international non-governmental conservation experts and land stewardship experts.

Participants explored [the potential applications](#) of the global Key Biodiversity Areas Standard for achieving Canada's [2020 Biodiversity Goals and Targets](#), in particular for increasing coverage of land and water by protected areas, and developed a plan for a national coordination body to complete identification of KBAs in Canada.

The workshop also reviewed and tested approaches for assessing the ecosystem service values of KBAs and protected areas in Canada, as part of determining and promoting the values of these sites for human well-being.

This workshop is one of many [collaborations affiliated with this project](#). In FY19, a report will be published in partnership with the [IUCN's World Commission on Protected Areas](#) summarizing findings and serving as a guide in assessing ecosystem services within important sites for biodiversity and conservation around the world.



SNAPP is a first-of-its-kind collaboration between three partners: The Nature Conservancy, the Wildlife Conservation Society and the National Center for Ecological Analysis and Synthesis at the University of California, Santa Barbara. Its mission is to deliver evidence-based, scalable solutions to global challenges at the intersection of nature conservation, sustainable development and human well-being.

## Marketing and communications

## External media

**To tackle environmental challenges, start with students**, by Bruno Vander Velde  
(Humanature - Conservation International Blog) – April 24, 2018 <https://bit.ly/2N7ZrFI>

**A new bond between the public and universities could brighten America's future**, by Amber Miller  
(The Associated Press) – May 22, 2018 <https://bit.ly/2OiQgyS>

**ASU Now**

**ASU researcher named American Geophysical Union Fellow - July 27, 2017**  
<https://bit.ly/2uGAoif>

**Broadening diversity in biodiversity science** – September 15, 2017  
<https://bit.ly/2xiuQMa>

**Back from the brink: How small donations helped save a species from extinction** - November 14, 2017  
<https://bit.ly/2xaWWZI>

**Swirling plastic ocean debris a growing problem – March 29, 2018**  
<https://bit.ly/2Qb91FN>



Stay up-to date with CBO news at:  
**[biodiversity.asu.edu/news](http://biodiversity.asu.edu/news)**

## Social Media

Our Twitter (@BiodiversityASU) account closed FY18 with 703 followers. 127 new followers joined in FY18, a 42.2 percent increase from last year. We had 4,652 profile visits, 258.1 percent more than FY17. The total number of impressions (the number of times followers saw our Tweets) was 228,940 — similar to last year.

We published 109 Tweets, generating an average engagement rate of 0.087%. The engagement rate is a measure of how much followers interact with Tweets (e.g. comment, like, re-Tweet). Per the 2018 Social Media Benchmark Report published by Rival IQ, the median engagement rate in Twitter across all industries was 0.046% — 0.062% for higher education and 0.055% for non-profits. Based on these measurements, CBO exceeded social media engagement rates for our sectors.

A Facebook (@BiodiversityASU) and a YouTube account were created in FY18. The number of subscribers is slowly but steadily increasing. We expect to provide more insights next year as we continue to expand our social media presence.

## Website

The graphs below provide a snapshot of the center's website activity ([biodiversity.asu.edu](http://biodiversity.asu.edu)) during FY18, per Google Analytics. The number of website users and sessions — the number of times the site was visited — more than doubled.

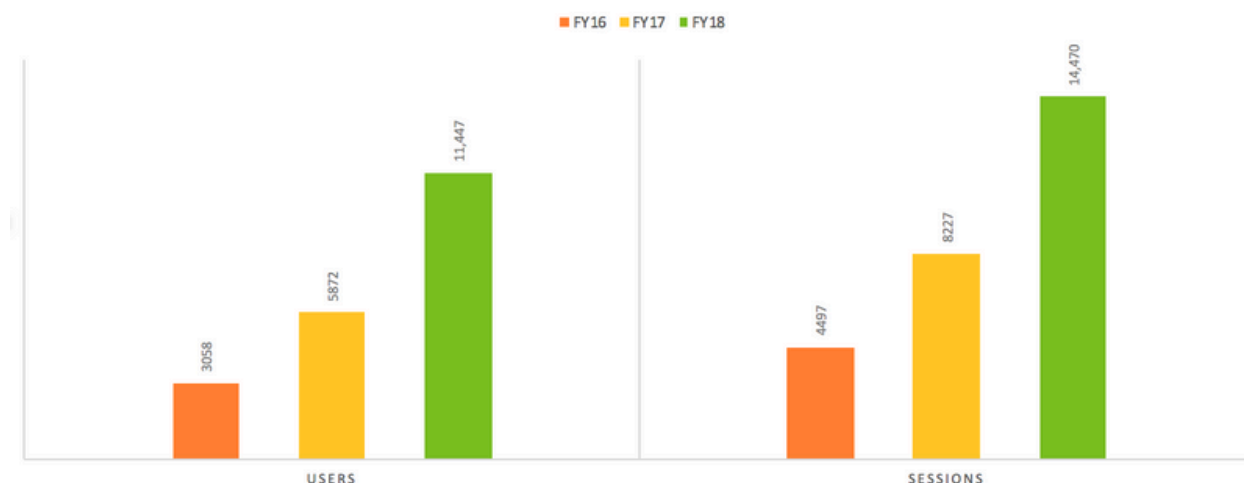


Figure 5. Website traffic comparison for users and sessions

The average session duration was 1.53 minutes. This is a decrease from last year (2.16 minutes). However, this is not necessarily bad news as it could reflect improved content that is delivered in a more concise manner.



Figure 6. Sessions by country



Figure 7. Sessions by device

Figure 8 shows the different channels leading users to our website. 47.8% of users come from organic searches (accessed via search engine results due to relevance of search terms — not ad campaigns), 44.9% directly access the site, 3.4% respectively access via social media links or via hyperlinks provided in other websites and 0.5% access by clicking on a link contained in an email.



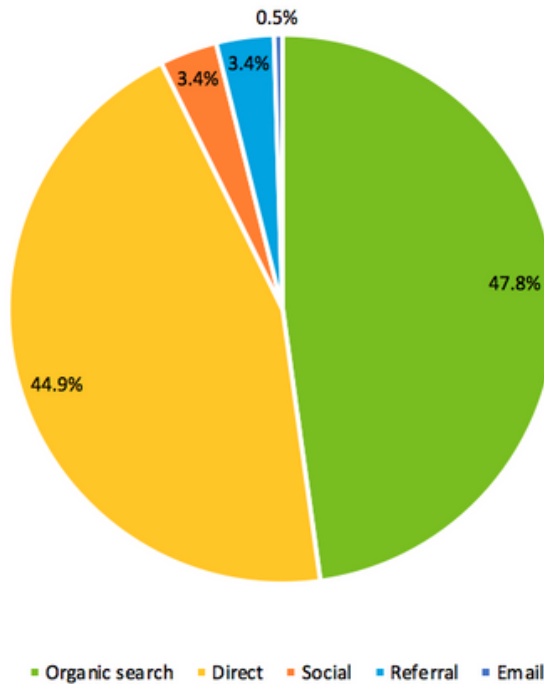


Figure 8. How we acquire website users

#### Other quick website stats for FY18:

**11,274** new visitors  
**173** returning visitors  
**954** average  
**Mon-Wed** monthly visitors  
**6-9a.m.** most popular times

#### Communication strategy

We continue to make strides in improving our communication strategy to better serve our goals. In FY18, we worked with strategic consultant Robert Lalasz, founder and CEO of Science+Story, to develop a message house to source content for our media and presentations, as well as serve as a unified language for the team and affiliates to promote the center. This document articulates problem-solution sets for how the center benefits our NGOs and corporate and government partners at various levels of engagement.

# Events

## Keynote presentations

### **Souls of the Vermillion Sea – March 25, 2018**

We collaborated with [Plea for the Sea](#) and [Lightkeepers Foundation](#) for a film screening of the short documentary [Souls of the Vermillion Sea](#) — the struggle to save the vaquita, the most endangered marine mammal in the world. The screening was followed by the first public dialogue with individuals directly involved with vaquita conservation efforts, including experts from December 2017 Vaquita CPR efforts. Vaquitas are only found in the northern waters of the Gulf of California.



Video available at: <https://bit.ly/2N9sR6p>

### **Can nature save us? Stories from the natural world – April 24, 2018**

As part of the ASU-Conservation International Annual Retreat, CI CEO M. Sanjayan gave a public talk to approximately 70 people on conservation stories around the world. His talk explored not only the importance of protecting nature, but also how nature provides critical functions for a thriving human society.



Video available at: <https://bit.ly/2NCSIIZ>

## Hugh Hanson Seminar Series (sponsored by the School of Life Sciences)

### **Frontiers in the assessment of global funding for biodiversity conservation – April 25, 2018**

Assistant Professor Dan Miller with the University of Illinois at Urbana-Champaign presented his research exploring the allocations and effectiveness of international conservation funding. His recent work has shown that conservation investment reduced biodiversity loss in 109 countries by a median average of 29% per country, between 1996 and 2008. His presentation concluded by reviewing the need for more approaches and technologies to track and evaluate conservation funding and its impacts.

## Selected conferences, webinars and symposiums

### **16th Biennial Conference of the International Association for the Study of the Commons – July 2017**

Affiliated graduate students Maria del Mar Mancha-Cisneros and Ute Brady attended the 16th Biennial Conference of the [International Association for the Study of the Commons](#) to develop a set of standard variables for social-ecological systems that facilitates more effective and sustainable conservation outcomes. The conference took place in Utrecht, Netherlands. The students organized an interdisciplinary panel as part of a collaboration between CBO and the ASU [Center for Behaviors, Institutions and the Environment](#).

### **International Congress for Conservation Biology – July 23-27, 2017**

A delegation of center faculty, professors of practice, postdoctoral research associates and students attended the [Partnerships for Conservation](#) workshop sponsored by the [International Congress for Conservation Biology](#) in Cartagena, Colombia. Founding director Gerber participated in a panel discussion with other colleagues from the private and nonprofit sectors on the importance of partnerships and their complementary roles in the pursuit of insights for sustaining life on Earth.

### **Collaboration for Environmental Evidence – April 16-20, 2018**

Samantha Cheng attended this conference in Paris and co-hosted a session on “Harnessing computer- assistance to improve transparency and efficiency in evidence synthesis.” She also co-led a hands-on training session on Colandr, an open access machine-learning powered software for evidence synthesis with Caitlin Augustin from Datakind. Colandr can be found at [www.colandrapp.com](http://www.colandrapp.com).

### **Chemonics International Kick Off Workshop – May 9-10, 2018**

A planning workshop led by CBO and Chemonics was attended by key ASU experts in the fields of biodiversity conservation and community engagement. This workshop outlined the first two phases of the partnership, the Conservation Solutions Lab, which includes collating a global evidence base and then developing empirically-based theories of change to be tested and validated in order to provide clarity on pathways for program design, implementation, monitoring and adaptive management. A research analyst was hired to advance Phase One through September 2018.

### **Communities, Conservation and Livelihoods - May 28-30, 2018**

Samantha Cheng attended this conference in Halifax, which was an international conference co-hosted by the Community Conservation Research Network and the International Union for Conservation of Nature's Commission on Environment, Economic and Social Policy (CEESP). This conference brought together indigenous, community, university, government, and NGO participants from around the world. Participants shared and discussed new initiatives and lessons learned relating to community-based conservation, indigenous knowledge, and greater cohesion between social and ecological components of conservation.

### **Linking Knowledge to Conservation Outcomes in the Galapagos Marine Reserve – June 19, 2018**

Leah Gerber facilitated this workshop in partnership with the Charles Darwin Foundation. In the Galapagos Islands of Ecuador, a large no-take marine protected area was recently established in the remote islands of Darwin and Wolf. This reserve represents one-third of the greater Galapagos Marine Reserve and is entirely closed to fishing. This workshop explored sustainable management opportunities for the region in the face of opposing viewpoints resulting from the establishment of the marine reserve.

### **Third Annual Symposium on Research Conservation – June 27-28, 2018**

Leah Gerber facilitated a presentation in collaboration with Professor Alex Hearn from the Universidad San Francisco de Quito, titled "Do oceanic island marine protected areas protect sharks in the eastern tropical Pacific?" This symposium was hosted by the Galapagos National Park and the Galapagos Science Center. The event was free and open to the public and highlighted the importance of research as an inquiry field for conservation solutions, while serving as a unique opportunity to learn about the regional, national and international conservation efforts taking place in the Galapagos.

### **WBCSD Member Liaison Conference – October 15, 2017**

Leah Gerber represented ASU as a panelist at the WBCSD Member Liaison conference in Mexico City at a discussion on talent and leadership. Gerber joined colleagues in a lively discussion on how to communicate a roadmap for companies seeking to implement sustainability at scale. The session focused on three core areas: careers and recruitment of talent, curriculum development and business school sustainability rankings.

### **Governance and Biodiversity Conservation – December 12, 2017**

CBO led a faculty workshop to build local empirical governance work to scale. This workshop, spearheaded by Associate Director of Social Sciences Abigail York, was attended by representatives from various colleges and disciplines. Attendees discussed various types of governance approaches including property rights focused systems, informal or decentralized systems, mixed systems and top-down governmental policy.

### **PluS Alliance Phoenix Symposium - December 11-14, 2017**

Amy Scoville-Weaver, Krista Kemppinen and David Hole joined over 200 attendees at the PluS alliance symposium to discuss the four themes of the alliance and how to engage on topics related to biodiversity conservation and sustainable development.



### **Environmental Communication and Leadership – January 5-8, 2018**

Leah Gerber and affiliated faculty John Sabo and Tod Swanson facilitated a communication and leadership training workshop in Iyarina Lodge, a rainforest lodge located in Tena, Ecuador. This event was co-sponsored by the Universidad San Francisco the Quito and tailored to USFQ faculty. The workshop was designed to provide leadership training and important skills to faculty scientists to effectively communicate science to an increasing global solution space.

### **Los Angeles Seafood Monitoring Program – March 5, 2018**

As part of continuing efforts to address seafood traceability in Los Angeles, Samantha Cheng helped lead discussions with scientists and stakeholders on first steps to establishing the Los Angeles Seafood Monitoring Program, led by Dr. Demian Willette at Loyola Marymount University. Methods include a combination of cutting-edge DNA barcoding tools; undergraduate citizen science; and engagement with restaurateurs, city officials and regulatory agencies.

### **Natural Capital Symposium – March 19-22**

Krista Kemppinen attended this conference in Stanford to meet with leaders advancing the science and practice of incorporating nature's diverse values into decisions. Case studies from the private and public sectors showcased the importance of appropriate data, collaboration across sectors and champions for advancing sustainable development.

### **Spring Research Series – March 21, April 4 and 18, 2018**

The center hosted a three-part series highlighting important biodiversity research happening in each of the center's three research focal areas: (1) evidence, metrics and monitoring; (2) decision science and data tools; (3) stakeholder engagement. The sessions were facilitated by Samantha Cheng, Krista Kemppinen and Beth Polidoro, respectively. Cheng reviewed her work on evidence synthesis and relevance to biodiversity outcomes. Kemppinen presented on tools to quantify the role of nature in achieving the Sustainable Development Goals. Polidoro spoke of the engagement with the IUCN Red List and Conservation International as examples of local and global cross-sector engagement.



## Conferences attended by the ASU-CI professors of practice:

### Jack Kittinger, PhD

- Plenary panel organizer and chair: **Driving global commitments to social responsibility in the seafood sector.** Seafood Summit. Barcelona, Spain. June 2018.
- Invited address: **Committing to social responsibility in the global food sector.** Nippon Foundation Nereus Program. Tokyo, Japan. December 2017.

### Rosimeiry Portela, PhD

- Led workshop: **Making the case for an oceans supplement to the natural capital protocol.** Australian Business and Biodiversity Initiative, National Australia Bank and Natural Capital Coalition. Melbourne, Australia. October 9, 2017.

## ASU events

### Conservation solutions for sustainable fisheries – September 6, 2017

ASU-CI Professor of Practice **Jack Kittinger** and Postdoctoral Research Associate **Elena Finkbeiner** presented to faculty, students and staff on their work on sustainable fisheries. Attended by 20 people, the discussion focused on the importance of fisheries to trade and economic livelihood for millions, and how CI and ASU can better partner to advance sustainable outcomes in this area.

### No need for persuasion: Evidence of Mesoamerica's changing climate – September 15, 2017

**Edwin Castellanos**, professor and director of the Center for Environmental Studies and Biodiversity at the Universidad del Valle de Guatemala, visited ASU to discuss how climate is changing in his home region and the science behind it. He also reviewed mitigation and adaptation strategies currently underway with an emphasis on Guatemala. The talk was sponsored by CBO and the Julie Ann Wrigley Global Institute of Sustainability.



Video available at: <https://bit.ly/2OjBWpZ>

### ASU Female Center Directors' Convening – October 3, 2017

CBO co-sponsored with the **Center for Gender Equity in Science and Technology** a semi-annual **gathering** designed to bring together all female center directors within ASU. This event, hosted by U.S. law firm Quarles & Brady under **Nicole Stanton's** leadership, saw 20 ASU female center directors discuss the opportunities and challenges women face in aspiring to positions of leadership. **Take the Lead** Executive Director **Gloria Feldt** led the discussion, which was moderated by CGEST Director **Kimberly Scott** and CBO Associate Director of Social Sciences **Abigail York**.

### Companies and climate change: A risk for nature? – October 4, 2017

Conservation International scientist **Allie Goldstein** presented two talks on climate change and the role for business to mitigate carbon emissions. Goldstein presented a lunch-time talk to the W. P. Carey School of Business MBA **Net Impact** student group and concluded the day with a faculty presentation.

### Life Sciences Café – New Faculty Seminars: Advancing evidence-based decision-science in conservation – February 12, 2018

While the need and value of evidence is recognized, it is rarely incorporated into policy — resulting in a sustained “knowledge-action gap.” This gap means many threats of the natural and human systems interplay go unaddressed in the Anthropocene. In this talk, Samantha Cheng presented on-going projects that aim to systematically examine the role of evidence, knowledge generation and stakeholder engagement in bridging this gap and informing decision-making.

### **ASU Open Door: Learning about the natural world – February 24, 2018**


For the third consecutive year, the center joined other ASU centers and schools to engage children as part of the **ASU Open Door 2018**. We organized **three activities** designed to teach participants about conservation — including a giant jigsaw puzzle game of the rainforest, asking children to match animals and people to certain biospheres, and letting children dig for (fake) insects in a tin of soil.

### **Can we save Africa's rhinos? - March 19, 2018**

Mike Slattery, director of the Institute for Environmental Studies at Texas Christian University, discussed the rhino-poaching crisis in Africa and how his university is implementing a multi-faceted approach to the issue in a project called the **Rhino Initiative**.

### **Wild freedom: The border and its environmental impact – November 15, 2017**

Samantha Lloyd screened her documentary-short “Wildlife Freedom: The Border and Its Environmental Impact.” The screening was followed by a discussion of the environmental impacts of policies governing the Mexico-U.S. border with Lloyd, Sergio Avila-Villegas and CBO-affiliated faculty Jan Schipper. The event was moderated by Andrew Maynard.

 Video available at: <https://bit.ly/2CSUbRM>

### **Spring Celebration Fireside Chat with the ASU President's Club – April 24, 2018**

CI CEO M. Sanjayan spoke with President Michael Crow during the spring convening of the ASU President's Club, which is a collection of distinguished donors and others supporters of ASU. During a series of questions posed by President Crow, Sanjayan spoke about the role that conservation and sustainability plays in securing a thriving future for human well-being and the importance of higher education.

 Video available at: <https://bit.ly/2NzqFVp> (min 37:11)

## **Meet-and-greet events**

### **ASU-CI Professors of Practice Speed Talks – April 25, 2018**

The professors of practice hosted a lightning-round presentation highlighting their areas of research and opportunities for ASU faculty engagement. This included their work on indigenous knowledge and coffee production, crafting a marine supplement to the Natural Capital Protocol and designing a framework for social responsibility in the world's fisheries.

### **Meet and greet lunch with Dan Miller – April 25, 2018**

Graduate students and faculty were invited to join Assistant Professor Dan Miller from the University of Illinois at Urbana-Champaign for a lunchtime discussion on conservation topics such as the impact conservation spending has on overall biodiversity loss.

## **External events (participated and promoted)**

### **The Spirit of Science – October 17, 2017**

Project Manager **Amy Scoville-Weaver** volunteered in a unique educational event at Jacobsen Elementary in Chandler. Over 150 children had “face-to-face” encounters with the most influential scientific minds throughout history, including Hypatia of Alexandria (played by Scoville-Weaver). Scientists from across the Valley acted the part, leading discussions with over 150 children about the history of science and the value that diversity and inclusion adds to advancing scientific thought and discovery. This event was sponsored by March for Science – Phoenix.



# Operations and staffing

CBO's administrative team led major improvements to the filing and tracking systems covering all aspects of the center (e.g. finances, marketing, communications, fundraising and events), streamlining operations and helping document center impact. With the support of the Julie Ann Wrigley Global Institute of Sustainability business office, we were also able to begin transition to Workday, the university's new financial management system.

The team continued to grow in FY18, welcoming two postdoctoral research associates in partnership with Conservation International (Krista Kemppinen and Elena Finkbeiner), eight student workers and three volunteers.

Assistant Research Professor Samantha Cheng joined the team as associate director of conservation evidence and launched the Conservation Solutions Lab in partnership with Chemonics International. Postdoctoral Research Analyst Aireona Raschke was also hired to support this initiative. In addition to the CSL, Cheng is also advancing research on the public value of conservation as part of an NSF Science of Science and Innovation Policy Grant led by Gerber and Derrick Anderson from the School of Public Affairs. The goal of this grant is to move from conservation evidence to tangible outcomes via knowledge partnerships.

Abigail York transitioned out of her role as associate director of social sciences. Project Manager Amy Scoville-Weaver also transitioned into a new role as program manager with the Office of Knowledge Enterprise and Development to manage the ASU-Conservation International partnership. We thank them both for their invaluable contributions to the center!

## Funding

In FY18, the center requested \$62.6 million in external funding, including grants and philanthropic support, exceeding the annual \$60 million goal. \$3.3 million were awarded to support affiliated biodiversity conservation research projects:

- Decision tools for effective water management (\$30,000 from The Earth Genome) Increased participation of women in academic science and engineering careers (\$3 million from NSF Advance) Mitigation of microplastics pollution in oceans (\$195,800 from the National Oceanic and
- Atmospheric Administration)
- Study of nutrient pollution risks associated with intensified agriculture under increased flooding
- and hurricanes (\$92,000 from The Nature Conservancy).
- 

At the time this report was written, we were waiting for confirmation on \$4.4 million from the \$62.6 million requested in FY18.

As illustrated in Figure 5, in FY18 the center aggressively increased its external funding portfolio. In the case of FY17, a \$100 million MacArthur Foundation submission, for which the center was a semi-finalist (among 25 percent of submissions with highest scores and recognized by the organization as one of the Top 200 Problem Solvers), significantly increased our annual average.



Figure 9. Total external funding requests per fiscal year

**Featured story:** [conservation-innovation.lab.asu.edu/2017/08/24/microplastics-risk-assessment-in-american-samoa](https://conservation-innovation.lab.asu.edu/2017/08/24/microplastics-risk-assessment-in-american-samoa) Deputy Director Beth Polidoro was awarded \$195,837 from the National Oceanic and Atmospheric Administration's Marine Debris Program to implement screening-levels of microplastics in American Samoa.

## Future direction

As we embark on our fifth year of CBO, we seek to advance our research and education agenda around achieving biodiversity outcomes. In particular, we aim to contribute to three major outcomes for biodiversity: (1) to decrease the number of threats to species, (2) to increase consideration of biodiversity in the private sector and (3) to develop science-based tools to facilitate decision-making that protects Earth's diverse life forms. Figure 10 illustrates how our organizational approaches can lead to these outcomes.

We are particularly excited to launch a suite of initiatives around increasing the valuation of biodiversity in the private sector, including new partnerships, research endeavors and leadership. New partnerships with corporate and corporate-facing institutions are examples of how we aim to forge ahead into this next year.

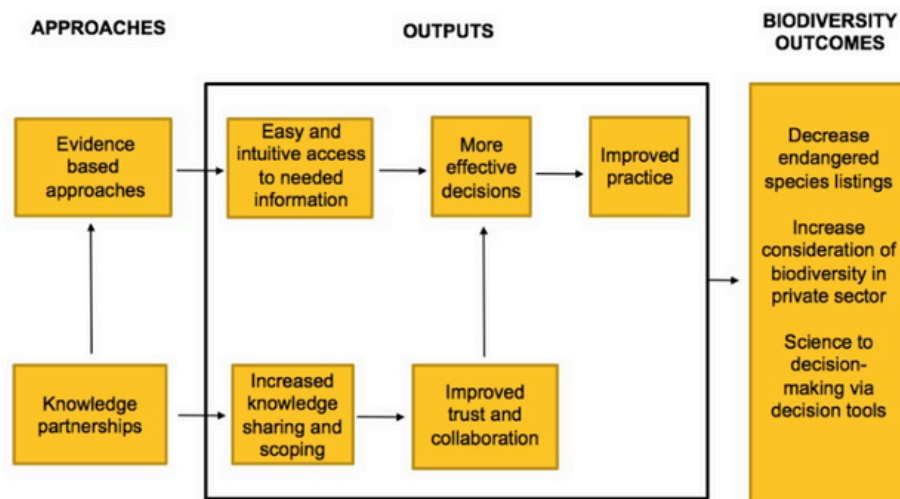


Figure 10. CBO's theory of change for achieving biodiversity outcomes.

We are initiating two projects aimed at providing a systematic assessment of costs and operational, reputational, legal and regulatory risks related to compliance with the Endangered Species Act. We are welcoming a new NatureNet Science Fellow Danica Shaffer-Smith who will be working with CBO-affiliated faculty Soe Mynt, Rebecca Muenich and Daoqin Tong with The Nature Conservancy in North Carolina. Lastly, we will be hiring a senior management research analyst to spearhead our biodiversity in business efforts.

At this critical phase of CBO, we will also be taking an introspective look at our sustained impact through measured evaluations of our existing partnerships and projects. Through an ongoing NSF Science of Science and Innovation Policy grant, the CBO leadership team will be developing and implementing a knowledge partnership “scorecard” to provide metrics for ongoing evaluation and organizational learning.

FY19 goals and metrics

Goal

Increase **funding**

Metrics

**Submit at least \$60M in external funding support, which includes:**

- \$6M for at least three CBO-collaborative proposals, which includes proposals submitted in partnership with Conservation International.
- \$350K for operational costs.

**Advance research** that informs biodiversity conservation **decision-making**

**Contribute data and tools toward measurable recovery of endangered species:**

- Develop a conservation investment tool.
- Apply recovery prioritization tool with the U.S. Fish and Wildlife Services.
- Expand the application of endangered species risk assessment tool.
- Complete IUCN Red List extinction risk assessments for 4,000 species.

**Increase consideration of biodiversity in the private sector:**

- Develop articulated theory of change for corporate engagement strategy.
- Engage at least three companies to consider biodiversity valuation.
- Develop narratives and communication documents to share with corporations.

**Increase awareness and use of evidence synthesis in conservation decision-making:**

- Increase engagement and awareness of evidence synthesis and how it can assist conservation decision-making.
- Produce evidence synthesis products for existing and new knowledge partners.
- Foster and evolve role of CBO as thought leader on evidence synthesis application to conservation and development programs and policies.



**Train the next generation of conservation leaders**

- Increase enrollment in the Environmental Communication and Leadership (graduate certificate).
- Increase student involvement in CBO-led research.
- Conduct research to identify gaps in conservation leaders' training, and begin developing and implementing curriculum accordingly.
- Contribute to ANGLES' body of knowledge and community of practice to advance graduate student leadership in sustainability.

**Enhance marketing and communications**

- **Website:** finish revamping to accurately portray value, differentiation and center initiatives.
- **News blog:** publish at least one story weekly (time blog with major annual events, recruit and train student writers — e.g. Nature at ASU).
- **Social media:** publish at least one relevant post daily and at least one organic post weekly.
- **E-newsletter:** write and publish quarterly (mirroring relevant updates from quarterly report).
- **Op Eds, editorials and biodiversity conservation scientist profiles:** publish at least one quarterly (e.g. Faculty Spotlight).
- **Quarterly reports:** work with consultant and team to continue enhancing quality of reporting.
- **Annual report:** develop special 5-year anniversary, highlighting achieved outcomes and future direction.
- **Affiliates welcome packet:** officially invite affiliates to join CBO, and update distributions lists and website accordingly.
- **Strategic communication consultant:** develop a comprehensive plan for CBO 2.0 (year 6 and beyond) and secure funding to support this work in early FY20.

**Streamline operations**

- Transition to ASU's new financial management system (Workday).
- Build on and update operational manuals.
- Support hiring and onboarding of new team members.
- Define long-term (next five years) strategy and objectives for the center.

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