Center for Biodiversity Outcomes

Annual Report 2022

Center for Biodiversity Outcomes

Arizona State University

We envision a world

where the diversity of life on Earth is valued and sustained for the benefit of all.

Our mission is to enable

discoveries and solutions

to sustain Earth's biodiversity in a time of rapid biophysical, institutional and cultural change.

contents

Inside this report

Access this report online at biodiversity.asu.edu/about

founding director

Letter from the founding director

Dear friends:

Two years after a global pandemic changed our workplaces, overturned our economy and transformed our way of life, the cause of the pandemic seems to have faded from our attention. By encroaching into wild areas, we unleashed a pandemic that is not the first and will not be the last of its kind. But traversing into wild places is not in itself the cause of runaway viruses. Rather, it is how we enter those spaces – what we do and why we are there in the first place – that must be changed. Our current culture perceives all life on land and in our seas as resources to extract, as products to sell, or as nuisances to remove. These perceptions have led to an unsustainable growth economy where we consume more resources than the planet can replenish. Protecting biodiversity is not simply about taking care of nature because we enjoy it. Biodiversity sustains all life on Earth and without it, our economies and our livelihoods will not continue in their current form. Our culture of extraction has an end date. We can either choose to change our way of life, or the choice will be made for us.

The time has come to envision a new future where the human-nature relationship is one of reciprocity and respect. Everything we eat, produce, create, modify, transport, sell and consume is made out of the products of nature. There are no exceptions. If we destroy those products beyond recovery, both nature and humanity will decline. But if we recognize our dependence on nature for every moment of our lives – every meal shared with family and friends, every holiday, every letter, every song, every photograph, everything made of human ingenuity – we begin to shift into a new awareness that can guide our future choices. When recognizing the interdependence of all life on earth, we naturally think differently about what we need and what we value most. We consume less, we take more walks, we vote differently, we parent differently, and we move through the world with a bit more gratitude. Cultivating nature awareness isn't just about appreciating a beautiful forest, it's also about noticing all the ways that nature enriches our lives. And it's about acting accordingly.

"CBO is committed to an inclusive process that brings people together to solve our nation's biodiversity challenges."

The Center for Biodiversity Outcomes offers a ray of hope for those of us working on the front lines of climate change and biodiversity loss. Whether we are everyday citizens or scientists, the loss of species, glaciers, or entire ecosystems can lead to feelings of grief and despair. But when we are mindful that individual efforts made collectively can make a difference, we begin to step into the realm of hope. Despite the IPCC's warnings that climate change is irreversible, we know that it's not too late for biodiversity. Nature is abundantly resilient if we allow enough time and space for new life to grow. In this coming year, let us begin to imagine places where nature and biodiversity can thrive in our midst, and let us move boldly toward a more hopeful future for all.

Leah Gerber
Founding Director, Center for Biodiversity Outcomes
Professor, School of Life Sciences

meet the team

Faculty leadership

Leah Gerber
Founding Director

Gwen Iacona
Assistant Director for Conservation Investment

Beth Polidoro
Associate Center Director of Biodiversity Valuation and Assessment

Staff

Susanne Hinrichs
Administrative Associate

Vera Von Esse
Program Manager

Research faculty

Katie Cramer
Assistant Research Professor

Candice Carr Kelman
Associate Center Director of Conservation Solutions

THANK YOU!

Our most profound appreciation goes to all the students, volunteers and consultants who helped advance our strategic goals in fiscal year 2022.

Postdoctoral research scholars

Christopher Barton

Simon Lhoest

Student workers and interns

Camilla Guerrero-Pineda

Erin Murphy

Janna Hynds

Katherine Poe

Katie Surrey-Bergman

Lisa Heredia

Paola Sangolqui

Learn more: biodiversity.asu.edu/people

our approach

Actionable science

Our primary objective is to help mainstream biodiversity in decision-making by advancing initiatives in education, research and partnerships to:

- **Train the next generation of biodiversity conservation leaders**
- **Bring biodiversity to the core of the world's decision-making**
- **Transform biodiversity investments and decision-making**

Our approach engages three dynamically integrated fields: education, research and partnerships. Through our actionable science model, we bridge academia and stakeholders to produce biodiversity conservation science that informs local, national and global decision-making.

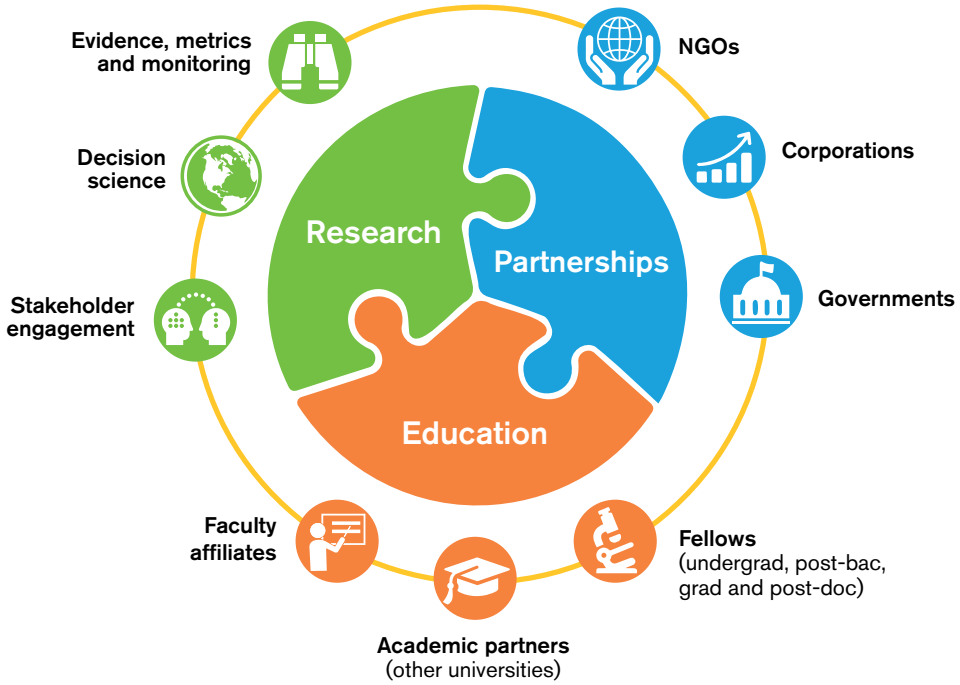


Figure 1. Actionable science model

As we implement our actionable science model, we study ourselves to increase our success rate and provide a scalable model that other institutions can apply globally.

Our strengths

We have access to a unique set of tools and resources that allow us to partner with various sectors, including other academic institutions, to address some of the most pressing biodiversity conservation issues of the 21st century.

NGOs	Corporations	Governments
NGOs focus on action. Universities focus on learning. Together we create solutions to pressing biodiversity issues. NGOs often lack the time and resources needed to stay abreast of cutting edge scientific research. The center bridges this gap.	The corporate sector has shown increasing commitment to considering sustainability issues over the past decade. However, many companies lack the data, expertise and incentive to rigorously consider biodiversity in operations. We work with companies to ensure they have the expertise to implement effective biodiversity management plans across their core operations.	Sound environmental policy requires not only cutting-edge scientific data and expert analysis, but also the ability to translate that academic knowledge into the real world. The center offers policymakers a range of services that can help them translate science into meaningful policy decisions.

Table 1. How we partner with different sectors to generate science-based solutions to pressing biodiversity conservation problems.

our values

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

We align our values 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

Engagement of stakeholders/decision-makers
Inclusion and diversity

IMPACT

Focus on human/ecosystem wellbeing
Solution-oriented

EXCELLENCE

Innovation
Transdisciplinarity research

focal areas

Focal areas

Our research, education and partnership initiatives are all framed within the following three overlapping areas:

- **Evidence, metrics and monitoring:** Developing empirical support for measuring impact and evaluating outcomes, training and capacity building for what constitutes evidence and how evidence can 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, conducting research into how to translate knowledge into action.
- **Stakeholder engagement:** Connecting students and faculty with strategic partners, decision-makers and practitioners.

Topics

We maintain an online inventory of current research projects covering a variety of topics, including:

- Actionable science innovation
- Advancing corporate sustainability and biodiversity conservation investments
- Biodiversity and the United Nation's Sustainable Development Goals
- Biodiversity science assessments and decision tools
- Broadening diversity and inclusion in science conservation
- Collaborative governance and biodiversity
- Community-based conservation
- Human-wildlife conflict
- Public engagement in biodiversity science
- Public health and biodiversity
- Two faces of extinction: physiological and socio-economical
- Water quality, human health and biodiversity

FY22 highlights

The year in review

Below are a few selected highlights from research, education, activities with our partners and note-worthy events during FY22. Please find more information about our activities in the media, publications and events sections and online: bit.ly/32cJuUl

ARTHUR L. AND ELAINE V. JOHNSON FOUNDATION

This research seeks to answer, "How much does it cost to achieve a conservation outcome?" In FY22, we completed the three primary objectives of this funding: (1) We created a web-based prototype Conservation Investment Tool to allow users (e.g., mid-to-senior-level government, foundation, and NGO staff) to explore tradeoffs between investment choice and biodiversity loss and use this information to inform national and international funding decisions under different socioeconomic growth trajectories. A paper detailing this work was published in the prestigious journal "Nature Sustainability"; (2) We developed a methodology for compiling conservation funding using Peru as a case study. We gathered funding data for the years 2009-2018 for the country, and the method and results have been submitted as a paper to the high-impact journal "Conservation Letters." We have also completed funding mapping for several other countries, including Bhutan, Benin, Madagascar, and Zambia; and (3) To promote consistency and competency in conservation costing practice; we have developed a web-based conservation intervention cost data portal that includes instructions and materials on how to collect and report cost data as well as our database listing existing cost studies and summarizing the data they use. We provided a training session introducing scientists and practitioners to this work at the International Congress on Conservation Biology and continue to update portal resources.
Learn more at bit.ly/3lXcGXp

BAYER

We have been working to explore opportunities for using decision science to improve the efficiency and transparency of pesticide registration and review. Improving data accuracy and analysis efficiency were listed as top priorities by a recent National Academy of Sciences assessment of the process. Therefore, as a first step, we have been exploring how decision-theoretic exploration of these aspects, particularly value-of-information analysis, can increase efficiency and transparency, reduce the number of species requiring section 7 consultation, and create confidence that registered pesticides do not hinder the recovery of listed endangered species. This work has resulted in a publication detailing drastic efficiency improvements in species risk assessments by ng high-resolution pesticide usage data in the risk assessment process. We are now building on the

compiled data and inference from his work to develop a ranking metric that (1) identifies the species most at risk from pesticide exposure and (2) supports decisions about prioritizing pesticide review efforts.

BIODIVERSITY AND BUSINESS

ASU Center for Biodiversity Outcomes founding director Leah Gerber participated in a sponsored presentation at GreenBiz 2022 on Teaming Up To Tackle Plastic Waste: How Cross-Industry Partnerships Can Ignite Long-Lasting Change. The hour-long panel on cross-industry partnerships, focused on sports and education. The panel, moderated by Chris Coulter from GlobeScan, and also featuring Rick Schlesinger, President of Business Operations for the Milwaukee Brewers, addressed plastic waste as one of the most critical issues of our generation.

CONSERVATION SOLUTIONS LABORATORY

Chemonics International is a private international development company that works for donors and the private sector to manage projects in developing countries. Its mission is to promote meaningful change worldwide to help people live healthier, more productive and more independent lives. We have partnered with Chemonics to create the Conservation Solutions Lab, a collaboration dedicated to practically and equitably engaging cities in conservation. The Conservation Solutions Laboratory is a network of conservation and development experts who link research with practice and implementation to generate new knowledge. Its mission is to operate as a living lab and conduct engaged scholarship and use-inspired research.

CONSERVATION INTERNATIONAL

The Center and Walton Sustainability Solutions Services (WSSS) were awarded a subcontract on a USAID grant received by Conservation International (CI) Peru to scale sustainable business models and foster the growth of environmentally friendly sustainable value chains. We are developing a transparent, data-driven decision support tool that Conservation International can use to target funding to projects that maximize conservation outcomes. In FY22, we developed a method to identify tradeoffs in investment for two agricultural green industries in the Ucayali and San Martin regions of Peru. Now we are using this approach to build a tool that will provide decision-makers with spatially explicit information to identify regions on the landscape where the benefits (threats averted) provided by green business activities result in maximal recovery potential for species of conservation concern (Red Listed species).

ELECTRIC POWER RESEARCH INSTITUTE

We continued working with the Electric Power Research Institute (EPRI) to analyze compliance costs. The primary objectives for this phase were to compile and analyze pilot compliance cost data to test the costing framework developed in Phase I and to perform an initial exploration of compliance costs within the electric power industry. The paper detailing this work, Habitat Conservation Plans to provide limited insight into the cost of complying with the Endangered Species Act was published in Conservation Science and Practice.

ENVIRONMENTAL COMMUNICATION AND LEADERSHIP

Students continued to apply to this graduate certificate, which we launched in fall 2017. We designed this certificate to train graduate students in science-based fields to communicate their findings to public audiences and decision-makers. We are currently offering this certificate across all campuses.
Learn more at bit.ly/2OMmmG4

INTERNATIONAL UNION FOR CONSERVATION OF NATURE

The International Union for Conservation of Nature Red List of Threatened Species is the world's standard for quantifying species extinction risks. It is used worldwide to inform policy, planning and conservation action. The Red List 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 worldwide to join forces in guiding the scope and application of scientific data for global and national biodiversity conservation. We are devising strategies for species conservation and biodiversity decision-making through this partnership. This partnership is led by our Associate Director, Beth Polidoro. In October, the center and the Conservation Innovation Lab hosted a talk by Newcastle University Research Associate Louise Mair, PhD., about the International Union for Conservation of Nature's (IUCN) Species Threat Abatement and Restoration (STAR) Metric.

The ASU-IUCN team submitted updated Red List assessments for the world's commercial tuna and billfish species, highlighted in several international media events and at the IUCN World Conservation Congress in Marseille, France, in September 2021. The team has also submitted updated assessments for all of the reef-building corals in the Atlantic Ocean, the results of which were presented by SOLS PhD student Luis Gutierrez at the International Coral Reef Symposium in Bremen, Germany, in July 2022.

Polidoro was recently named to the IUCN Star Metric Interim Committee under the leadership of Frank Hawkins. The committee will ultimately be under the

IUCN Red List Committee, which is the governance structure of the formal ASU-IUCN Red List Partnership.
Learn more at bit.ly/2NKZjgE

LENFEST OCEAN PROGRAM

Gerber continued work on a grant from the Lenfest Ocean Program of the Pew Charitable Trusts in partnership with conservation scientists working in the Galapagos National Park in Ecuador. The project is titled "Establishing the foundations for structured decision making and adaptive spatial management in the Galapagos Marine Reserve." It focuses on developing a modeling and monitoring approach to assist the Galapagos National Park Directorate in refining management goals and conservation decisions. This work provides empirically supported insight into the characteristics of actionable knowledge, relationships between scientists and decision-makers and decision-making structures.

As part of the project, we hosted a workshop with the Galapagos National Park Directorate (GNP) in April 2022. The workshop was held in Puerto Ayora, Santa Cruz, and Galápagos at the Galapagos National Park Directorate headquarters. This workshop was jointly organized by ASU, WildAid and the Galapagos National Park Directorate as part of the activities included in the project. The workshop's main objective was to select a case study to demonstrate the applicability of the SDM approach based on SDM selection criteria. We are also co-developing a handbook with the Galapagos National Park Directorate to explain how the SDM approach would be helpful in the Marine Reserve management. The handbook will include the case study development that could be replicated in other decision-making scenarios in the Galapagos.
Learn more at bit.ly/3kq2d64

PLASTIC POLLUTION EMISSIONS WORKING GROUP

Gerber and Polidoro were co-authors of a widely acclaimed Science article titled "Predicted growth in plastic waste exceeds efforts to mitigate plastic pollution," published in September 2020. The research, led by Stephanie Borelle at the Department of Ecology and Evolutionary Biology, University of Toronto, Toronto, Ontario, Canada, indicates that plastic waste accumulates around the globe far faster than it is being broken down by human or environmental means. Polidoro and PhD student Erin Murphy were selected to organize a session at the upcoming International Marine Debris Conference (IMDC) in Busan, Korea, in September 2021 on the impacts of plastic

on higher levels of biological organization. Building upon ongoing work in American Samoa, with funding from the NOAA Marine Debris Program, Polidoro published a Blog on the results of the project to date to monitor and reduce plastic pollution.

SCISTARTER

We connected with SciStarter to engage informal learners in conservation research. In 2021 we developed a project that launched in April 2021 as part of ASU's celebration of Citizen Science Month. "Pollinators Across ASU Campuses," asked individuals to record and identify pollinators of ASU's campuses using the app iNaturalist. This initiative provided valuable data about the prevalence and variety of pollinators and serves as a proof-of-concept for future projects involving formal and informal learners in research establishing species ranges and population densities.

Thought Leadership

Gerber gave an interview on National Public Radio in a segment titled Gone For Good: How A Species Is Declared Extinct. Alongside the companion piece, "How to save more species before they are gone forever," This work underscores the need for standardization of cost reporting to better support understanding

of Endangered Species Act compliance costs. In April 2022 Geber co-authored a paper in Nature titled "An investment strategy to address biodiversity loss from agricultural expansion," alongside the Conservation Innovation Lab's PhD student Camila Guerrero-Pineda. The article describes the foundational work CBO is developing as part of the Amazon Business Alliance project, in partnership with Conservation International and the Rob and Melani Walton Sustainability Solutions Service at ASU. In May, a Science Direct paper titled "A Proposal Framework for a Tri-National Agreement on Biological Conservation in the Gulf of Mexico Large Marine Ecosystem" explored how the only multilateral environmental agreement, the Cartagena Convention, may not be sufficient to protect the high diversity of species in the area. Gerber proposes the creation of a tri-national agreement with a focus on conservation efforts in the Gulf of Mexico between the three Gulf of Mexico Large Marine Ecosystem countries: the United States, Cuba and Mexico, allowing for specific regional conservation concerns to be addressed.

publications

Selected Publications and reports

Cramer, K.L., Bernard, M.L., Bernat, I, Gutierrez, L., Murphy E.L., Sangolqui, P., Surrey, K.C. Gerber, L.R., 2021. The Present and Future Status of Ecosystem Services for Coral Reefs Elsevier Inc doi: 10.1016/B978-0-12-821139-7.00177-X (link)

Surrey, K.C., Hawley, C.R., Davis, O.N., Clements, J.L., Bernat, I., Gerber, L.R. 2021. Refining the Ecosystems Services Model: Integrating Animal Behavior into Ecotourism Management. Elsevier Inc doi: 10.1016/B978-0-12-821139-7.00184-7 (link)

Hilborn, R., Agostini, V.N., Chaloupka, M., Garcia, S.M., Gerber, L.R., Gilman, E., Hanich, Q., Himes-Cornell, A., Hobday, A.J., Itano, D., Kaiser, M.J., Murua, H., Ovando, D., Pilling, G.M., Rice, G.M., Rice, J.C., Sharma, R., Schaefer, K.M., Severance, C.J., Taylor, N.G., Fitchett, M. 2021. Area-based management of blue water fisheries: current knowledge and research needs. Fish and Fisheries doi: 10.1111/faf.12629 (link)

Fischer, H.A., Gerber, L.R., Wentz, E.A. 2021. Evaluating the fitness for use of citizen science data for wildlife monitoring. Frontiers in Ecology and the Environment doi: 10.3389/fevo.2021.620850 (link)

Murphy, E. Eikenberry, S., Iacona, G., Watson, G., Gerber, L.R. 2021. The value of increased spatial resolution of pesticide usage data for assessing risk to endangered species. Conservation Science and Practice, doi: 10.1111/csp2.551 (link)

Murphy, E., Bernard, M., Dooley, K. and Gerber, L.R. 2021. Evaluating the role of market-based instruments in protecting marine ecosystem services in for wild-caught fisheries. Ecosystem Services, 51:101356. doi: 10.1016/j.ecoser.2021.101356 (link)

Murphy, E., Bernard, M., Iacona, G.D., Borrelle, S.B., Barnes, M., McGivern, A., Emmanuel, J., Gerber, L.R. 2021. A decision framework for estimating the cost of marine plastic pollution interventions. Conservation Biology, doi: 10.1111/cobi.13827 (link)

Weiss, K.C.B., Iacona, G.D., Corzón, A.T., Davis, O.N., Kemppinen, K., Surrey, K.C., Gerber, L.R. 2021. Aligning actions with objectives in endangered species recovery plans. Conservation Science and Practice, 3(8):1-15. doi: 10.1111/csp2.473 (link)

Visseren-Hamakers, I.J., Razzaque, J., McElwee, P., Turnhout, E., Kelemen, E., Rusch, G.M., Fernandez-Llamazares, A., Chan, I., Lim, M., Islar, M., Gautam, A.P., Williams, M, Mungatana, E., Karim, S., Muradian, R., Gerber, L.R., Lui, G., Liu, J., Spangenberg, J.H., Zaleski, D. 2021. Transformative governance of biodiversity: insights for sustainable development. Current Opinion in Environmental Sustainability, 53:20-28. doi: 10.1016/j.cosust.2021.06.002 (link)

Mair L et al (Gerber, L.R. + 83 additional authors). 2021. A metric for spatially explicit contributions to science-based species targets. Nature Ecology and Evolution, 5(6):836-844. doi: 10.1038/s41559-021-01432-0 (link)

Cardenas, S., Gabela-Flores, M.V., Amrein, A., Surrey, K., Gerber, L.R., and Guzman, H.M. 2021. Tourist Knowledge, Pro-Conservation Intentions and Tourist Concern for the Impacts of Whale-Watching in Las Perlas Archipelago, Panama. Frontiers in Marine Science, 8(627348):1-10. doi: 10.3389/fmars.2021.627348 (link)

Ashe, E., Williams, R., Clark, C., Erbe, C., Gerber, L.R., Hall, A.J., Hammond, P.S., Lacy, R.C., Reeves, R., Vollmer, N.L. 2021. Minding the Data-Gap Trap: Exploring Dynamics of Abundant Dolphin Populations Under Uncertainty. Frontiers in Marine Science, 8(606932):1-10. doi: 10.3389/fmars.2021.606932 (link)

Zerbini, A.N., Orr, A.J., Bradford, A.L., Kenner, M., Suydam, R., Alvarez-Flores, C., Gerber, L.R., Laidre, K., Hauser, D., Hoberecht, L. 2021. Memories, Glenn R. VanBlaricom. Marine Mammal Science, 1-4. doi: 10.1111/mms.12791 (link)

Kittinger, J., Bernard, M., Finkbeiner, E., Murphy, E., Obregon, P., Klinger, D., Schoon, M., Dooley, K., and Gerber, L.R. 2021. Applying a jurisdictional approach to support sustainable seafood. Conservation Science and Practice, 3(5):e386. doi: 10.1111/csp2.386 (link)

Habitat Conservation Plans provide limited insight into the cost of complying with the Endangered Species Act KC Surrey, G Iacona, B Madsen, C Newman, LR Gerber Conservation Science and Practice, doi: 10.1111/csp2.12673 (link)

Polidoro BA, Lewis T, Clement C. 2022 A screening-level human health risk assessment for microplastics and organic contaminants in near-shore marine environments in American Samoa, Heliyon, doi: 10.1016/j.heliyon.2022.e09101 (link)

Learn about our research at **biodiversity.asu.edu/research**

outreach and engagement

FACULTY ENGAGEMENT

Innovative solutions require diverse perspectives. We partner with various faculty across ASU to conduct research that sheds light on biodiversity conservation issues. We currently have 131 affiliates from over 25 different units across the university. In FY22, we supported eight program leads. Most of our faculty affiliates come from the School of Life Sciences, the School of Sustainability, the School of Human Evolution and Social Change, and the School of Earth and Space Exploration. In FY22, we engaged with the program leads to scale the reach and impact of center research and activities, applying for several proposals led by the transdisciplinary team. Our proposal, GirlsConserve, engages girls in STEM careers using a culturally-relevant One Health approach, co-led by Polidoro and Kimberly Scott of the Center for Gender Equity in Science and Technology (CGEST), was funded by Women in Philanthropy. Work is expected to begin on the project in the summer of 2022.

TRAINING OPPORTUNITIES

We support an internship program established by Associate Center Director Beth Polidoro in which undergraduates are placed with our partner organizations. Through our partners, who include the IUCN, the Phoenix Zoo, the Desert Botanical Garden and other associated organizations, students are afforded available opportunities to engage in local and global conservation work, gaining crucial skills and professional connections. To date, more than 30 students have participated in this program.

STUDENT ENGAGEMENT

The center is fortunate to work with dedicated, passionate undergraduate and graduate students. Since founding the center in 2014, we have completed 48 student hires from six different schools across the university. Our students engage in various projects, including scientific research, communications and marketing, project management and event planning.

We assign students to projects that align with their career interests and provide them with hands-on experiences and mentoring to help them hone their transferable skills and learn to network with professionals in their field, gaining a competitive advantage in the workforce.

In Spring of FY22, the Center for Biodiversity Outcomes hosted two Community of Practice Speaker Series events. The first featured Frank Hawkins of the IUCN discussing the Species Threat Abatement and Restoration (STAR) Metric. The second talk featured Bonnie Keeler, associate professor at the University of Minnesota, as she discussed What is clean water worth? And to who?.

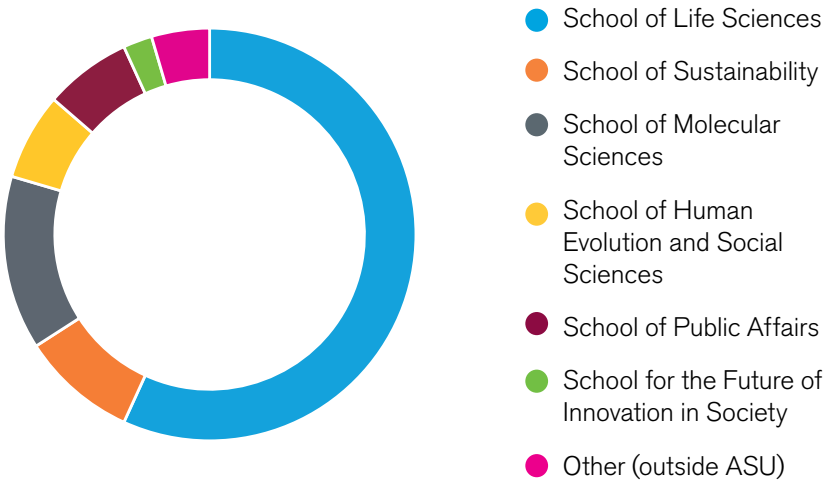


Figure 2. Student workers engagement by school, FY15-FY22

funding

Goals and accomplishments

CBO reports proposal activity in three levels: proposals written by Center personnel, proposals written by program leads or co-led by Center personnel and proposals on which CBO played a catalyzing or enabling role. The Center scales our impact through involving and supporting our broad network of ASU faculty affiliates in submitting proposals to government, foundation and private sources of funding. While many of these proposals are still pending, our team has been awarded more than one million dollars in funds to date.

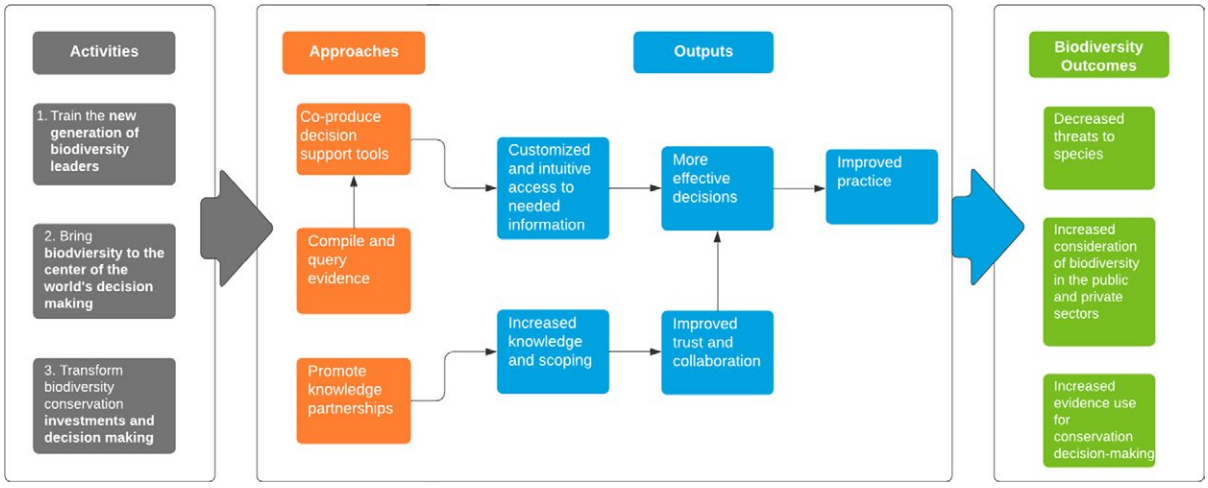
Proposal Title	Sponsor	Awarded
A New Wave: Implementing Alternatives to Plastic Food Packaging in American Samoa	NOAA	$ 85,660.00
ASU Proposal for Alliance for Biodiversity Knowledge Governance Models	Global Biodiversity Information Facility (GBIF)	$ 26,019.00
CAREER: Knowledge Infrastructure in the Red List of Threatened Species	NSF	$ 438,587.00
CIVIC-PG Track A: Piloting the application of the data-to-decisions rapid response team to support climate adaptation planning within the Florida State Park system	NSF	$ 50,000.00
Engaging girls in STEM careers using a culturally-relevant One Health approach	ASUF	$ 48,511.00
Using Machine Learning, Satellite Imagery, and Open Geospatial Data to Identify Aquaculture Sites with High Potential for Production Intensification and Mangrove Restoration in Southeast Asia and Latin America	Climate Change AI (CCAI)	$ 149,998.00
	TOTAL	**$798,775.00**

future direction

Looking ahead

In our ninth year, we will continue to advance our research and education agenda around achieving biodiversity outcomes. It is vitally important to create an understanding of and support for a richly biodiverse planet among individuals, governments, corporations, and nations. The challenges to creating this understanding and support include the lack of awareness of and capacity to implement win-win solutions that benefit biodiversity and the corporate bottom line, or biodiversity and satisfying lifestyle. With seven years of experience behind us, having interfaced on a global map, influencing policy, and creating actionable outcomes through the research we conduct, we are excited to meet these challenges.

In the next year, we will convene and foster interdisciplinary research efforts around biodiversity challenges, led by our faculty affiliates. We will engage in education research and activities, including citizen science and informal education, as well as formal K-12, college, and graduate activities. We will continue to support partnerships with government, corporate and corporate-facing institutions through actionable science to increase the valuation of biodiversity in the public and private sector, supported by our research.



contact us

Center for Biodiversity Outcomes
Arizona State University
PO Box 875402
Tempe, Arizona 85287-4501
United States

480-727-9873 main
480-965-8087 fax

biodiversity@asu.edu
biodiversity.asu.edu

Consider donating at **biodiversity@asu.edu/contribute**

thank you

Thank you for your support and dedication in protecting Earth's biodiversity.




The Center for Biodiversity Outcomes is a partnership between the Global Institute of Sustainability and Innovation and the School of Life Sciences.