

Half-Earth Project: Impact Report 2021-2022

This is Our Moment

Thank you for being a part of our community during a pivotal year for biodiversity and the environment. Inspired by E.O. Wilson's research and the Half-Earth Project, this year governments, environmental organizations, businesses, philanthropists, and members of the public worldwide are committing to 30x30, an ambitious goal to conserve 30% of land, sea and freshwater by 2030. These commitments have their origins in the objective of Half-Earth. We know that big goals matter and we are thrilled that the world is embracing this target. With your help, we are on the path to half.

Because of this action, there is an increase in opportunities for place-based conservation worldwide, leading to a need for additional tools to evaluate areas of great biodiversity conservation significance. Additionally, there are new avenues for galvanizing scientists, educators and global citizens to work together to protect species, places and people. Over the last year, the Half-Earth Project has continued to drive scientific innovation regarding the most effective path forward for the protection of species and ecosystems and to make tools, like the Half-Earth Project Map, available to everyone the world over. We have supported the higher education of taxonomists in conservation biology, as well as teachers and students in secondary schools with fun, interactive curriculum to inspire the next generation and amplified a national and global conversation about the urgency of protecting places and people.

Amidst these accomplishments, this year also saw great loss for our organization, and the conservation community as a whole, with the passing of E.O. Wilson in December. In the wake of his passing, we heard from so many of you about the many ways he encouraged and inspired you. While we grieve, we believe that the best way to honor him is by carrying forward his vision and continuing to elevate the work of the Half-Earth Project. Thank you for being a part of Ed's legacy and for your generous support. Together, we can achieve the goal of Half-Earth and leave no species behind.

By the Numbers

- 5,700 registered attendees and 14,400 views from over 90 countries for Half-Earth Day 2021
- 10,473 unique visitors to the Half-Earth Project Map in 2021, an 18% increase from the previous year
- 900 Half-Earth Project Educator Ambassadors
- 50% increase in Half-Earthers, our \$1,000+ donors
- Over a dozen short films, including [Saving Biodiversity](#), [the Next Big Thing](#), and a new discussion series: [Places and Voices of America the Beautiful](#)

A Tribute to E.O. Wilson

E.O. Wilson's unbridled curiosity about the world transformed the imaginations of countless students and budding naturalists, and his courageous research sharpened the perspective of everyone from classrooms to boardrooms to citizen scientists to world leaders. Both formally and informally, he inspired students of life. In the field, his passion for discovery was infectious. Dr. Wilson devoted his life to teaching us.

He affected so many people throughout the world. In an email, Shobha Shirke described herself as a 60-year-old housewife who owns a small farm in India, on the Western Ghats. She read *Half-Earth* and then picked up other books by Dr. Wilson, "He sort of became my mentor," she said. "I always felt that some pockets of land we should keep aside for mother nature and did so in my small farm, letting the Indigenous plants grow, like fish tail palm, wild rose and Jumbul trees ... I am deeply saddened by Dr. Wilson's demise, but his books, talks, work and research has given an ordinary person like me guidance & strength."

Dr. Wilson, a pioneering ecologist, entomologist, author, and teacher for over 70 years, influenced the fields of biology, philosophy, sociology and more. A U.S. medal of Science winner, two-time Pulitzer prize winner, and author of over 30 books and 400 papers, the world came to know him through his writings which profoundly shaped modern science.

The President William J. Clinton shared, "E.O. Wilson taught us so much about the importance of preserving our rich biodiversity, and perhaps more significant today, how cooperation, not conflict, has enabled humanity to survive and thrive. His later books left us a roadmap for the future."

In his last years, he made a constant plea, underscoring the need for broader research to better understand the species of our planet, and what places best nurture them, to ensure we prioritize protection of the places that species uniquely depend upon. In part through the E.O. Wilson Biodiversity Foundation and the Half-Earth Project, Dr. Wilson's life will continue to encourage new generations of scholars, scientists, educators, conservationists and policy makers to act. He constantly reminded and encouraged us that we could make a difference in the world. Thank you for joining with us to do just that.

Building the Knowledge Base Through Science and Research



With *Half-Earth*, E.O. Wilson's intention was to create a goal of human endeavor that ensured we would leave no species behind. This is not just important conceptually, it is important inspirationally—if you look at history, this is the sort of moonshot ambition that drives humanity. Species matter and each species has its own important place in the world. But not all places are equally effective at protecting biodiversity. So the Half-Earth Project is mapping the geospatial location of all the species of our planet at a high resolution to transform our understanding of the world and inform what places offer the most effective path forward for protection of endangered species and endangered ecosystems. The Half-Earth Project is developing and expanding a data-driven global biodiversity synthesis through the Half-Earth Project Map and other science initiatives. These efforts seek to build knowledge

of the species of our planet so that as we move forward as a global community we can make informed decisions about places to conserve.

The Half-Earth Project Map

The Half-Earth Project Map continues to advance and develop, providing even more crucial information to scientists, governments and citizens so we can best preserve our biological heritage. The map delivers unparalleled information on species, including an initial global assessment of species at 1 to 50km scale for all terrestrial and marine vertebrates and at 1km to country-scale for hundreds of thousands of invertebrate and plant species. Through this work, the Half-Earth Project has helped the world to understand the importance of making conservation decisions based on real information about the status of species, as evidenced by the adoption of the UN Convention on Biological Diversity of the Species Protection Index as a major indicator when measuring the success of conservation efforts

Last year, the map underwent a major update to improve users' experience and provide a higher resolution for a finer level of detail. The map has new biodiversity layers, new color ramps, an updated menu, and a new way to access National Report Cards and the Species Protection Index. For example, new taxonomic checklists were added for invertebrate groups such as ants, butterflies and dragonflies as well as for plants in the order *Sapindales*, which includes citrus, cashew, mahogany and maple trees. These checklists are based on extensive research that combines published lists with museum and citizen science occurrence records. The additions represent a major step toward increasing the taxonomic representation of the Half-Earth Project Map.

The Half-Earth Project has developed methods for identifying the top twenty priority places for biodiversity conservation within each country and our team has begun work to incorporate a prototype of this information into the Half-Earth Project Map. We call these Places for a Half-Earth Future: Places that are high priorities for conservation, with extraordinary species richness and rarity, which are currently unprotected. These locations highlight the places that will lead to the most rapid conservation gains for biodiversity habitat via contributions to species representation targets.

Select Publications

The point of the Half-Earth Project science and research ultimately is *application*: to ensure an evidence base for conservation decision-making globally. Of particular importance is ensuring the global community adopts species measures as a primary way of prioritizing areas for conservation. The importance and potential of these measurement tools is outlined in the paper, "Include biodiversity representation indicators in area-based conservation targets" recently published in *Nature* by Scientific Chair, Walter Jetz and colleagues. This paper and other science communications that make the case for biodiversity measures are especially urgent right now as countries prepare to commit to new conservation targets at the Convention on Biological Diversity in 2022. Other significant publications include:

- Our technology partner Esri, which is advancing conservation through mapping, launched *GIS for Science Vol. 3 – Maps for Saving the Planet*, featuring a foreword by E.O. Wilson and a chapter on the science of the Half-Earth Project.
- "Global geographical and latitudinal variation in butterfly species richness captured through a comprehensive country-level occurrence database," by Walter Jetz and colleagues, published in *Global Ecology and Biogeography* in March 2022
- "Continental-scale 1 km hummingbird diversity derived from fusing point records with lateral and elevational expert information," by Walter Jetz and colleagues, published in *Ecography* in 2021

Additionally, the Half-Earth Project is beginning the process of adding layers to the map that would demonstrate the relationship between priority areas for biodiversity conservation and those for carbon sequestration. A range of ecosystems contain ‘irrecoverable carbon’ that is vulnerable to release if disturbed and once lost is not recoverable within a timeframe that avoids dangerous climate impacts. As new geographic data emerges locating important carbon sequestration areas, there is immense potential to join these metrics with biodiversity metrics and provide clear decision-support for a range of stakeholders, including businesses, agencies, governments and local communities.

Half-Earth Chairs and Scholars at Gorongosa National Park in Mozambique

The Half-Earth Chairs and Scholars program enhances the best of biodiversity scholarship by supporting students and researchers around the world who are advancing biodiversity science, teaching and leadership in their particular region of the globe.

Joining this budding group this year is Norina Vicente of Tete, Mozambique, who as a young woman saw E.O. Wilson on TV talking about one of the planet’s most biodiverse areas, Gorongosa National Park, right there in Mozambique. It inspired her to become a scientist and she soon earned an internship at the park where she participated in advanced seminars on bioinformatics and biodiversity survey methods. In 2018, she joined the Department of Scientific Services full time as a research technician in the E.O. Wilson Biodiversity Laboratory. This year she became a Half-Earth Project Scholar and is pursuing a Master of Science in San Francisco, with her research focused on the ants of Mozambique.

Additionally, Half-Earth Chair Piotr Naskrecki is working to expand Mozambican student participation in research and scholarship at the E.O. Wilson Biodiversity Laboratory at Gorongosa National Park. Dr. Naskrecki recently launched the Half-Earth Project Fellowship in Taxonomy and Biodiversity Exploration to enable young Mozambican researchers to receive training from visiting taxonomic experts and advance their ability to document Mozambique’s biodiversity. The first two researchers graduated this year. A principal goal of the Half-Earth Project in Mozambique is



Alumni of the first entomology workshop held at the Laboratory at Gorongosa National Park

to train a new generation of local taxonomists and conservationists, each specializing in a different taxonomic group, and to collect new data on the distribution of various taxa to fill in gaps in the Half-Earth Project Map.

Advancing a National and Global Conversation



E.O. Wilson speaking with Sir David Attenborough

Half-Earth Day 2021

In 2021, Half-Earth Day® went global. The signature event was held in person in London, with virtual sessions being joined by people from all over the world – from London and Boston to Singapore and Bangladesh. More than 5,600 attendees from more than 90 countries attended lectures from distinguished scientists and thinkers like Johan Rockström, Director of the Potsdam Institute for Climate Impact Research, and Razan Al Mubarak, newly named President of the International Union for Conservation of Nature.

The capstone event featured a new lecture by E.O. Wilson, “*Ecosystems and the Harmony of Nature*,” followed by a historic conversation between broadcaster and natural historian Sir David Attenborough and E.O. Wilson, moderated by Sir Tim Smit, Co-founder of the Eden Project. Half-Earth Day attracted new global sponsors, including CBRE, Mishcon de Reya, Audubon, National Geographic, and the Garrison Institute. If you missed something, every lecture and panel can still be viewed online at [the Half-Earth Day 2021 showcase](#).

Session Highlights:

- **Courageous Optimism:** The opening session featured a discussion between Dr. Paula J. Ehrlich, President & CEO of the E.O. Wilson Biodiversity Foundation, and co-founder of the Half-Earth Project, and Hindou Oumarou Ibrahim, an Indigenous leader from the Mbororo pastoralist community in Chad and an expert in climate adaptation and mitigation and traditional knowledge. The conversation focused on the courageous optimism it takes to forge an enduring ethic to care for our planet.
- **Evidence and Science Foundations:** A panel of scientists, including Mark Costello, Stefan Pinkert and Aurore Maureaud, moderated by Walter Jetz, addressed the taxonomic and biogeographic foundations of conservation and highlighted new data and science advances.
- **A Biodiverse Education: Outdoors, in School, and in the Community:** In this session, educators and organizations focused on what’s working and shared what’s promising to engage youth and diverse people in nature. Moderated by Dennis Liu, Vice President of Education for the E.O. Wilson Biodiversity Foundation, it featured a variety of short talks from finding awe and wonder to shaking up the standard school model to getting outside to engage with nature in city, suburb, and country from educators from around the world.



Dr. Paula J. Ehrlich speaking with Hindou Oumarou Ibrahim

Places and Voices of America the Beautiful

The Half-Earth Project is playing an important role in ensuring that once-in-a-generation conservation

opportunities, like those laid out in the Biden Administration's America the Beautiful plan, are not lost. As part of this effort, we launched a new *Places and Voices of America the Beautiful* discussion series in the fall, which will run through 2022. The online discussions are focused on areas of great biodiversity in the United States and the pathways and people essential to protecting them. We are exploring how the America the Beautiful initiative, and

relevant legislation, public engagement, and scientific research are critical not just to local efforts, but to protecting global biodiversity as well.



For example, in November, *People and Voices of the Southeastern Coasts and Forests* featured the Gullah Geechee Cultural Corridor National Heritage Area, a keystone species of the Southeast, the gopher tortoise, and the role of the Center for Heirs' Property Preservation. The discussions are free and open to the public with registration. See [the Half-Earth Project website](#) for details on how to join the next discussion.

In the Media

- Paul Simon, the legendary singer-songwriter and E.O. Wilson shared the grand ambition of Half-Earth onstage at the Global Citizen Live concert, which broadcast to half a million viewers worldwide. “When I first heard Ed Wilson speak, he said something that really struck me. He said we have the ability to make this world a paradise. And I believe and he believes we still have that potential. We know it’s going to be hard work but that’s where we are headed,” Simon shared.
- Thousands of listeners heard the hopeful message of Half-Earth through radio and podcast appearances this year. Dennis Liu, VP of Education at the E.O. Wilson Biodiversity Foundation, offered insight into the advantages of working with teachers on conservation education on [the ReWilding podcast](#). Paula Ehrlich discussed how innovative science and a shift in consciousness can guide an approach to the extinction crisis with Half-Earth as the inspiration for interim goals like 30x30 on [Climate One](#).
- Readers of *Mongabay*, the largest online conservation magazine, took a deep dive into the [unique science of the Half-Earth Project](#) and learned how the Species Protection Index (SPI) works to inform countries of their areas of high biodiversity that remain unprotected. *Mongabay* also covered Half-Earth Day in an in-depth interview with E.O. Wilson, alongside Sir Tim Smit and Paula Ehrlich. [Read the interview here](#).
- E.O. Wilson’s message reached thousands of people around the world in new interviews. Reuter’s [“Harvard’s modern-day Darwin warns against humanity’s downward slope,”](#) is a call-to-action to address the extinction threat. Also, in the Vox series *Down to Earth: the Biodiversity Crisis Explained*, [“This legendary 92-year-old biologist has some advice for saving Earth”](#), Wilson offers this wisdom, “It requires a sense of personal responsibility and merit to save parts of the world that are very valuable for our history, for our welfare, and — unfortunately — are very vulnerable to careless destruction.”
- Technology partner Esri, which is pioneering problem solving with GIS, featured the Half-Earth Project on their podcast [“Protecting the Web of Life: The Science Behind the Half-Earth Project,”](#) in which Esri Conservation Solutions Director David Gadsden investigated how technology is supporting our vision of sustainable conservation across the globe.
- And of course, there were many pieces published in outlets big and small paying tribute to E.O. Wilson upon his passing and expressing the impact of his decades of work.

Investing in Science Educators and Tomorrow's Scientists

Half-Earth Project Educator Ambassador Network and Institutes

One of our signature efforts is the Half-Earth Project Educator Ambassadors, which provides a mechanism for teachers to engage each other and their students in biodiversity conservation across the curriculum. This network of educators includes classroom teachers from middle school through college and across disciplines, looking for ways to bring biodiversity and conservation into their curriculum, as well as non-formal educators with organizations such as nature centers

- *Educational Resources Development:* We continue to develop high-quality materials for teachers across disciplines and for levels varying from middle school up to college. One recent set of materials focuses on native bees, which are important players in the ecosystem with many diverse species. We offer brief focused lessons that encourage simple observation to lengthier lessons that engage students in mapping the distribution of a variety of bee species and comparing where they live to the ranges of their preferred flowers.
- *Presentations, Institutes, Workshops:* Presentations for the purpose of supporting the ambassador community and to fulfill our fundamental mission of providing learning opportunities on biodiversity and conservation have continued, for the most part as virtual events, but some in-person events have resumed. Additional events are scheduled with the UNESCO Chair on Sustainable Management of Conservation Areas, National Science Teachers Association and Audubon's Naturally Latino Conference. Presentations with individual classrooms have also been given, including to an adult ESL class, leading to a project to translate pages from the Graphic Adaptation of *Naturalist*.

Half-Earth Project Master Ambassadors



New Master Ambassador Selim Tlili

Master Ambassadors are highly skilled and energetic teachers who share our mission and are active with our materials and mission. The Half-Earth Project works in-depth with three Master Ambassadors who consult with the Vice President of Education, assist the growth of the larger and guide curriculum development. Current Master Ambassadors include Tamara Jolly, a high school science teacher in Baltimore City where she has worked for 13 years, Jenna Adams, who shares her love of science and learning with her middle school students in

Baltimore City where she's been teaching for more than 8 years, and Selim Tlili of the Rudolph Steiner School in New York who became a Master Ambassador this year. Selim is originally from Puerto Rico with family connections to Puerto Rico and Tunisia. Selim studied biology in college before taking master's degrees in Environmental Health at Hunter College and Environmental Humanities at Harvard University. Selim participated in an introductory GIS mapping workshop that ESRI made available to the ambassadors, and as a result he has been able to offer projects for his students right in their school neighborhood. In addition to his stellar teaching and writing skills, Selim is fluent in both English and Spanish and will be helping translate Educator Ambassador materials into Spanish.

Building a Strong Organization

Justice, Equity, Diversity and Inclusion (JEDI) in decision-making related to biodiversity

The Half-Earth Project has been working to strengthen our approach to justice, equity, diversity and inclusion, most recently drawing on the deep expertise of social scientist Leander Lacy to ensure equity is effectively built into our scientific and conservation approaches. Under the direction of Lacy, the board and staff are training to develop skills and plans in a range of areas from *Building and Sustaining Trust with Diverse Communities* to *Equity in Conservation Planning*.

Other highlights of our JEDI efforts include activities aimed at reaching teachers and students at public middle schools in underserved rural and urban districts as part of the Educator Ambassador program. And, with *Places and Voices of America the Beautiful*, we are offering a platform for diverse voices working at the intersection of conservation and social justice. For example, last year in May the online discussion focused on Alabama in *At the Crossroads: Biodiversity, Civil Rights, and Science Education from the Black Belt to Paint Rock*. The panel featured Patience Knight of the Paint Rock Forest Research Center, who is engaging young students from historically Black Alabama A&M University in conservation discovery and management, and Phillip Howard, who is working with the Conservation Fund and others in the Alabama River Diversity Network to preserve sites of civil rights significance that also have rich biodiversity.

A New Champion of Biodiversity Joins Our Team



LaTresse Snead joined the team as a strategic advisor on the Half-Earth Project's efforts to support the implementation of 30x30 and our contributions in association with the Convention on Biological Diversity. Snead most recently served as Chief Program Officer of the National Park Foundation. Driven to influence and build diverse, nonprofit talent, she launched Bonsai Leadership Group LLC, with the goal of developing multicultural leaders and helping nonprofit executives cultivate inclusive teams. Her previous experience includes senior leadership roles at The Nature Conservancy. A Birkman Certified Consultant and Certified Personal Development

Coach, she is passionate a vocal champion of equity and inclusion in outdoor spaces.

Thank You

Thank you for all that you do to fight for the environment, protect nature, and help us ensure we leave no species behind. Your support is making it possible for us to build the knowledge-base, deploy that knowledge so we can make the best decisions about caring for the earth, and invest in the future of conservation through education. It is by collective action—based in science and implemented by local communities and networks—that we will be able to protect half of Earth's lands, waters and seas so that all life has what it needs to flourish. Thank you for being a part of our community. Your confidence in all that we are doing to advance the grand ambition of the Half-Earth Project and safeguard the biodiversity of our planet means more than ever.

Upcoming Events

Places and Voices of America the Beautiful
New episodes spring 2022

E.O. Wilson Birthday Celebration
June 10, 2022

Half-Earth Day
October 2022