American Museum of Natural History

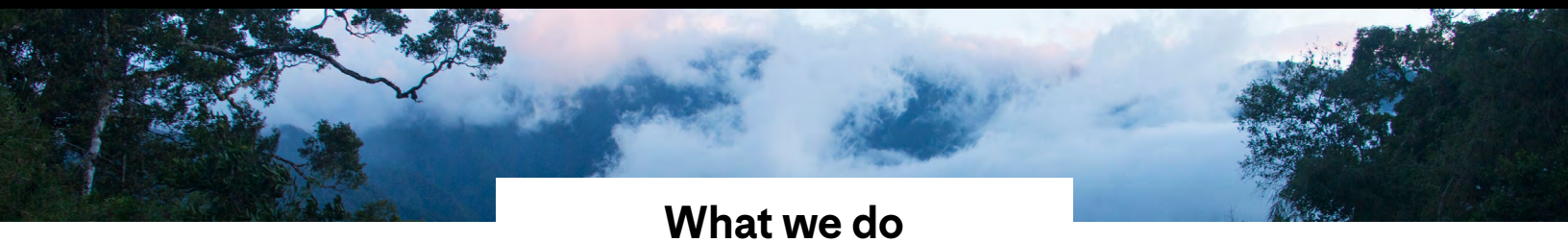
Center for Biodiversity and Conservation

Photo: Ann Marie Gawel

Progress Update Spring 2025

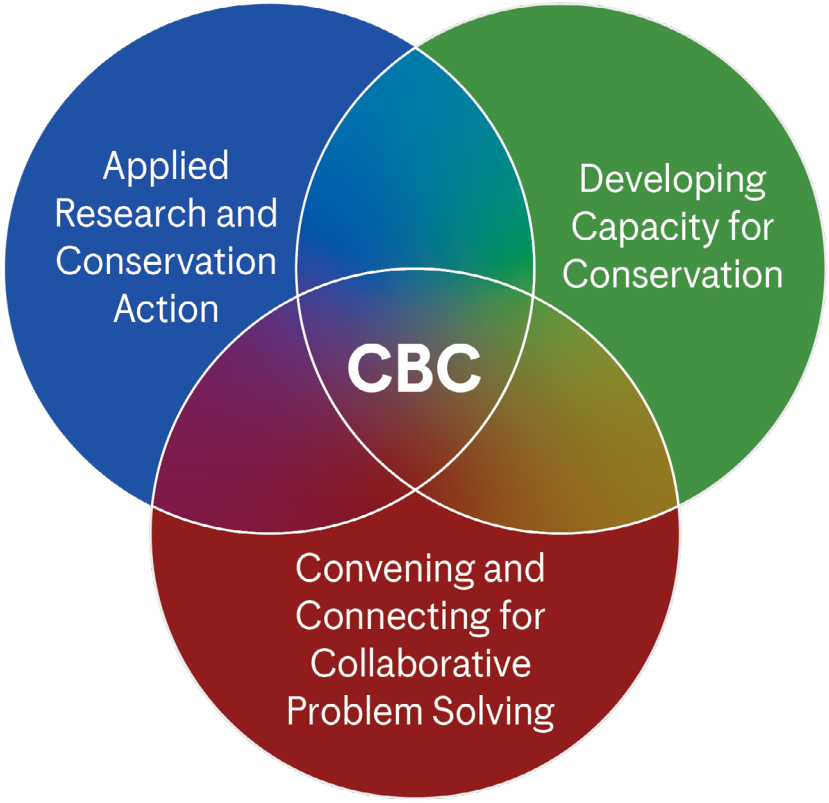
American Museum of Natural History

Center for Biodiversity and Conservation



What we do

For over 30 years the CBC has been leading science to sustain life on Earth—a fundamental challenge of our time. The challenge is both scientific and social, so we work by **connecting different strands of knowledge in our research**, **connecting people to knowledge**, and **connecting people to each other**.



Both longstanding and new projects are helping us deepen synergies with other scientific work at the Museum, support decision-making under climate change, and contribute to local and regional biodiversity and climate resilience. We are pleased to share recent highlights from our work.

Appointments, Awards & News

Dr. Jesse Barber began his tenure as Curator and Jaffe Chief Conservation Scientist in January and is building his research portfolio along multiple lines of inquiry ranging from evolutionary biology to conservation science.

Dr. Mary Blair was promoted to CBC Associate Director in April, to recognize her growing leadership, impactful scholarship, and to facilitate the expansion of her research portfolio. Dr. Blair will also strengthen the Center's connections—both internally and externally—with policy fora such as the United Nations, the International Union for Conservation of Nature (IUCN), and non-governmental organizations.

CBC Director Dr. Ana Porzecanski has been invited to join the Advisory Board of the David H. Smith Conservation Research Fellowship Program. For over 25 years, this prestigious fellowship has provided leading scientists with two years of post-doctoral research support, training, peer networking, and field learning experiences.

The CBC has secured funding for two new research endeavors:

Thanks to a grant from the Hudson River Foundation (HRF) we are embarking on a two-year interdisciplinary research study on small-scale fishing in New York City. In addition to investigating foundational questions on fishing activity across the city, the grant will bring together scholars, managers, officials, and civil society groups to devise pathways for making fishing in the city both safer and more accessible. See below for more details!

We are pleased to announce a new partnership with Nia Tero to lead research on the practice of Indigenous guardianship and its potential as a new conservation paradigm. The work will draw from multiple strands of scholarship and knowledge held by Indigenous and non-Indigenous people working to secure vital places and place-based cultures. To kick-off the work, the CBC will host a number of Indigenous experts at the Museum's Gilder Center in late April for a knowledge exchange, in tandem with the United Nations Permanent Forum on Indigenous Issues.

Photo: U.S. Forest Service/John Zapell

The Year in Numbers

30 Publications

- 25 Peer-reviewed
- 19 Open access
- 3 With local partners
- 13 With students, interns, mentees

6 Honors or appointments

12 Presentations at professional meetings

8 Invited talks

12 Contributions to the Museum's programs

3 Popular articles, media appearances or coverage

6 Funding proposals submitted

16 Interns, mentees, and trainees per semester

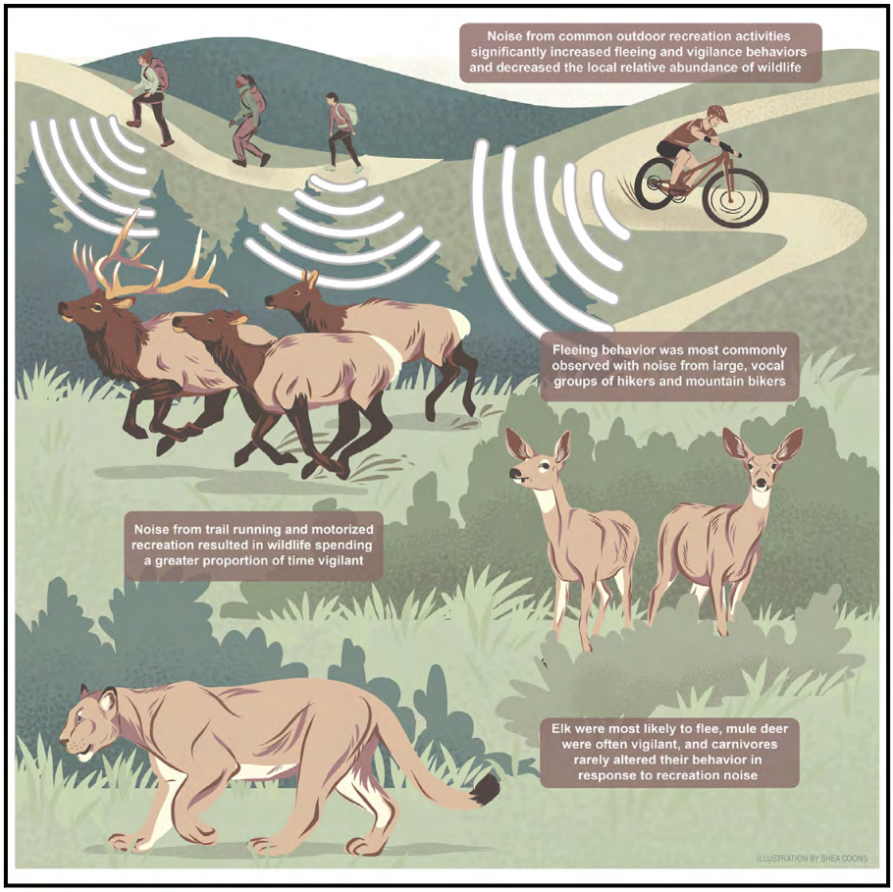
7 New or updated open access software tools

Research

Our research illuminates ecological relationships and guides conservation planning and practice.

Dr. Barber published important new findings on the ecology and evolution of bat and moth interactions. The battle between bats and moths is one of the most charismatic stories in biology and has the power to engage the public in the wonder of the natural world and thus to conserve biodiversity. In this line of work the Barber Sensory Ecology Lab recently published a book chapter reviewing some of this work, as well as a technical engineering paper debuting an exciting new tool used for this research. In this paper, they introduce a novel sensor system that integrates a high-speed camera with a 3-D sonar sensor that investigates the insect echoes perceived by bats. By capturing and synchronizing high-resolution video with dense 3-D acoustic data, this technology provides a detailed analysis of the echo dynamics from fluttering insects under a bat's attack. This multimodal approach allows for an unprecedented study of the acoustic interactions between bats and their prey, facilitating more profound insights into evolutionary adaptations in predator-prey dynamics. One of the first projects with this technology is understanding how the long tails of saturniid moths lure bats to these expendable appendages to allow their escape.

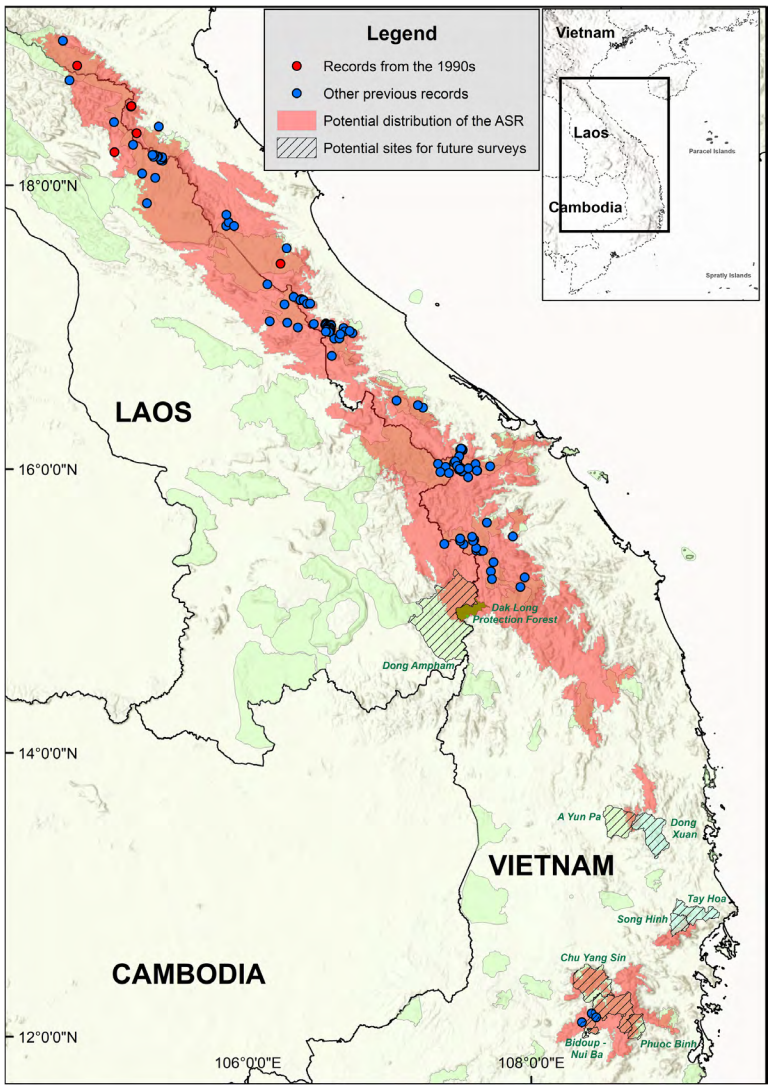
On the conservation front, recent work by Dr. Barber and a team from the United States Forest Service has shown that human recreation noise impacts wildlife in the Greater Yellowstone Ecosystem and can be far reaching and have negative effects on wildlife, even if these are often unobservable. Results show that recreation noise, without human presence, caused anti-predator responses that often lasted for days following a single exposure. Species' sensitivity varied, but large vocal groups of humans caused the strongest responses from wildlife, and, as outdoor recreation continues to increase in popularity and geographic extent, noise from recreation may result in degraded or indirect wildlife habitat loss.



Dr. Barber is now integrating CBC expertise to expand this research to understand the extent of off-highway vehicle use with CBC Biodiversity Specialist Amanda Sigouin, and to map the noise produced by OHVs across Wyoming's Bridger-Teton National Forest with CBC Senior Software Programmer Pete Ersts.

In addition to investigating the effects of sound, Dr. Barber is also investigating those of light pollution by exploring the color and brightness of nighttime lighting that works best for people and wildlife. In one project, the team replaced all 32 streetlights in the largest visitor center in Grand Teton National Park to allow wireless control over each light's color and brightness. Other research published in January 2025 shows that dim, blended-red light compared to bright, white light attracts far fewer insects. In addition, a recently published social science paper showed that people assess red lighting as more protective of the environment than white lighting. These results demonstrate that outdoor lighting designed to reduce ecological impacts can yield a superior nocturnal experience for people. Dr. Barber aims to continue to work in Grand Teton National Park, Great Smoky Mountains National Park, and Maine's Acadia National Park to answer these questions.

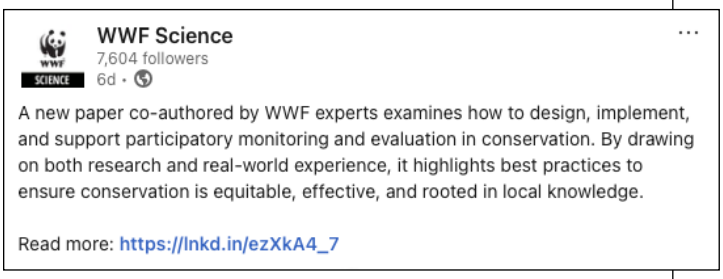
Dr. Blair and collaborators made important advances in their work to protect endangered primates in Vietnam. The project, supported by the Arcus Foundation, led field work in Huong Khe, Ha Tinh near the border between Laos and Vietnam in December of 2024, where there has been a gap of data on gibbon distributions. The resulting information from the survey, now close to publication, represents a significant update and change from previous understandings of gibbon distributions in the country, and demonstrates the need for a full taxonomic revision and an update to conservation status for these endangered species. In addition, past project participants are building on our work and software tools to advance other conservation fronts, including the recent discovery of a new population of the Annamite striped rabbit, a critically endangered mammal in Vietnam, and identification of conservation priorities for all threatened mammals in Vietnam.

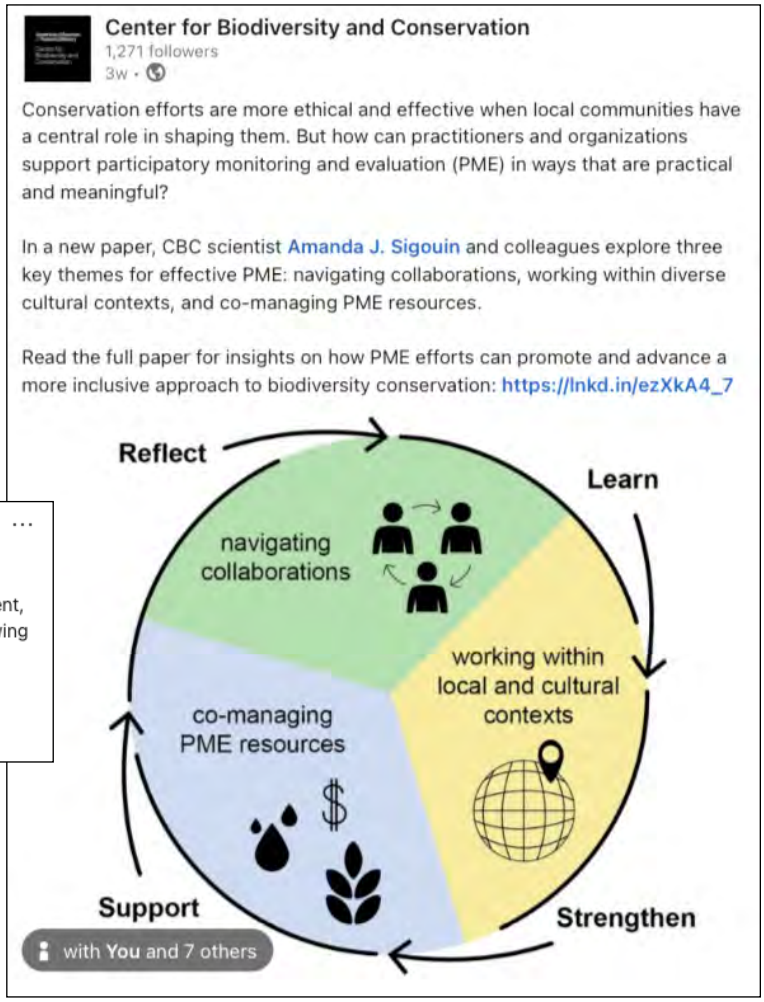


Maxent distribution model result for the Annamite striped rabbit in current conditions (Figure 1, Tuan Nguyen and Le 2024)

In Colombia, Dr. Blair continues to lead NASA-funded work with the Colombia Biodiversity Observation Network and Protected Areas System. The tools and approach used in this work were recently compiled a new book, in Spanish, co-authored by CBC Biodiversity Informatics Specialist Daniel Lopez. Project results were also presented at the American Geophysical Union in December. The approach for software co-design published by the project team in the journal *Bioscience* last year has also proved influential. It is now being used for conservation software *Alas Seguras*, which Audubon Americas is developing to support bird conservation groups in the Amazon.

Ms. Sigouin and several CBC co-authors published a perspective in *Conservation Science and Practice* on participatory monitoring and evaluation, a result of our recent collaboration with former CBC researcher Dr. Sam Cheng, now at the World Wildlife Foundation (WWF). This type of monitoring is increasingly valued as a way for Indigenous peoples and local community actors to lead or engage in conservation activities that directly affect them, yet practical insights remain scattered. Through an evidence review and discussions with professionals in the field, CBC and WWF authors distill practical guidance for conservation practitioners and organizations regarding the design, implementation, and support of participatory monitoring and evaluation in conservation.





The CBC's inaugural Eleanor J. Sterling Conservation Fellow, Dr. Ann Marie Gawel—who has begun doing field research in Guam—published research on community perceptions of invasive species and implications for environmental management in the journal *Conservation Biology* in December 2024. The study highlighted the challenges and successes managing invasive species in Guam, an island infamous for the extinction of its avifauna due to a species of invasive snake.

Dr. Gawel also published an analysis of 50 years of invertebrate conservation under the United States Endangered Species Act for Frontiers in Conservation Science, in March 2025. The study's co-authors used Artificial Intelligence to comb through the government's listings of documents to understand the history of these conservation efforts and highlight major threats to endangered invertebrates. All other co-authors were arthropod specialists, so Gawel offered expertise on mollusks, especially non-marine mollusks such as land snails (see cover). These account for over 50 percent of listed invertebrate species.

New Research Projects

As mentioned above, made possible by a grant from the Hudson River Foundation, the CBC is embarking on a two-year research study to answer foundational questions about small-scale fishing in New York City. Since 2023, the CBC and others have been exploring conservation, health, and equity concerns surrounding the harvesting of aquatic wildlife and associated consumption practices. Building on this foundation, CBC Rizavi Fellow Adam Jadhav developed the research proposal in consultation with collaborators, including NYC Parks. Dr. Porzecanski and CBC Visiting Scientist Jesse Rodenbiker, an Assistant Professor of Geography at Rutgers University, will serve as co-investigators.

The project will take a "five boroughs, five cases" approach, and aims to characterize small-scale fishing at five sites around the city, using both social science methods, such as surveys, ethnographic observations, interviews at NYC piers, as well as natural science methods such as targeted specimen collecting trips in partnership with the Department of Ichthyology. In addition, the grant will support the organization of a New York City Small-Scale Fisheries Working Group. This will be a space for scholars, managers, officials, civil society groups and fishers, to meet regularly during the project, and work together to make fishing in the city both safer and more accessible. A more robust understanding of harvesting activities will also help the CBC understand how risks associated with these uses may change as the climate changes and NYC demographics evolve, and can inform restoration strategies, which are important in turn to mitigate climate change impacts.

CBC's Adam Jadhav (left), a volunteer Minami Nakamura (center) and Ichthyology's Ryan Thoni (right) collect fish from the Saw Mill River near Elmsford, NY.

Dr. Jadhav also submitted a preproposal to New York Sea Grant for an adjacent two-year project of biological collecting, preservation, and analysis of fish currently caught and consumed by NYC fishers; research objectives include both ecotoxicological testing as well as comparison to the Museum's historical specimens. The CBC envisions this mode and focus of work as a step toward meeting multiple Museum-wide goals: unlocking our collections, conducting local research on biodiversity, and engaging broader communities of New Yorkers. This initial proposal includes collaborators in the Department of Ichthyology as well as Princeton University and the U.S. Forest Service.

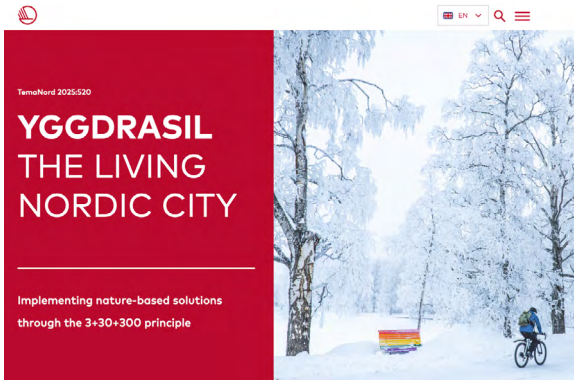
The CBC's collaboration with Arctic Indigenous reindeer herders to co-investigate and monitor the links between reindeer, people, and climate change has begun, despite delays in the granting of award funds due to new program reviews at NASA. Project partners are organizing a special event at the United Nations in late April on the challenges of land fragmentation, and Dr. Blair participated in the Fourth International Conference on Arctic Research Planning, in Boulder, CO, this past March with partners from the International Centre for Reindeer Husbandry. Dr. Blair and her partners are committed to initiating this important work—at a smaller scope if needed—and have been exploring additional sources of funding.

We continue to see important impact and uptake of our tools and previous work

Members of the CBC, including Dr. Porzecanski, Mr. Ersts and Ms. Sigouin, participated in a series of workshops to design a system-wide National Parks Monitoring and Reporting System for Bahamas National Parks, organized by the Bahamas National Trust. At the second workshop, Dr. Porzecanski and Sigouin were invited to present on the Center's biocultural indicator research and applied work, and how a similar approach could be developed with local communities in the Bahamas to identify relevant biocultural indicators for Bahamas National Parks. The CBC team will act as a reviewer for the final set of proposed indicators and planning documents.

The CBC's software tools are used daily to support research and education and have been cited in thousands of peer-reviewed articles as well as government reports.

Maxent, the CBC-hosted software for modeling species niches and distributions that is used worldwide, has been cited more than 23,600 times. Since Fall 2024, Maxent has supported numerous conservation studies, including a 2025 report by the Norwegian Council of Ministers and the Nature Based Solutions Institute for a technical report on nature-based solutions to climate change for Nordic Cities. Maxent has also been used to create a conceptual tool to assess Arctic permafrost vulnerability, as climate change drives permafrost thaw.



Other research using Maxent has investigated the coverage of protected areas and the full annual cycle of migratory butterflies and the necessity of creating long-distance corridors to help facilitate the Asian Elephant's adaptation to climate change. Additional studies range from predicting future change in habitat suitability in the Great Himalayan National Park to marine debris impacts on Hawaiian green sea turtles.

Photo: John Zaker / USFWS (CC 2.0)

Photo: M. Prince (CC 2.0)

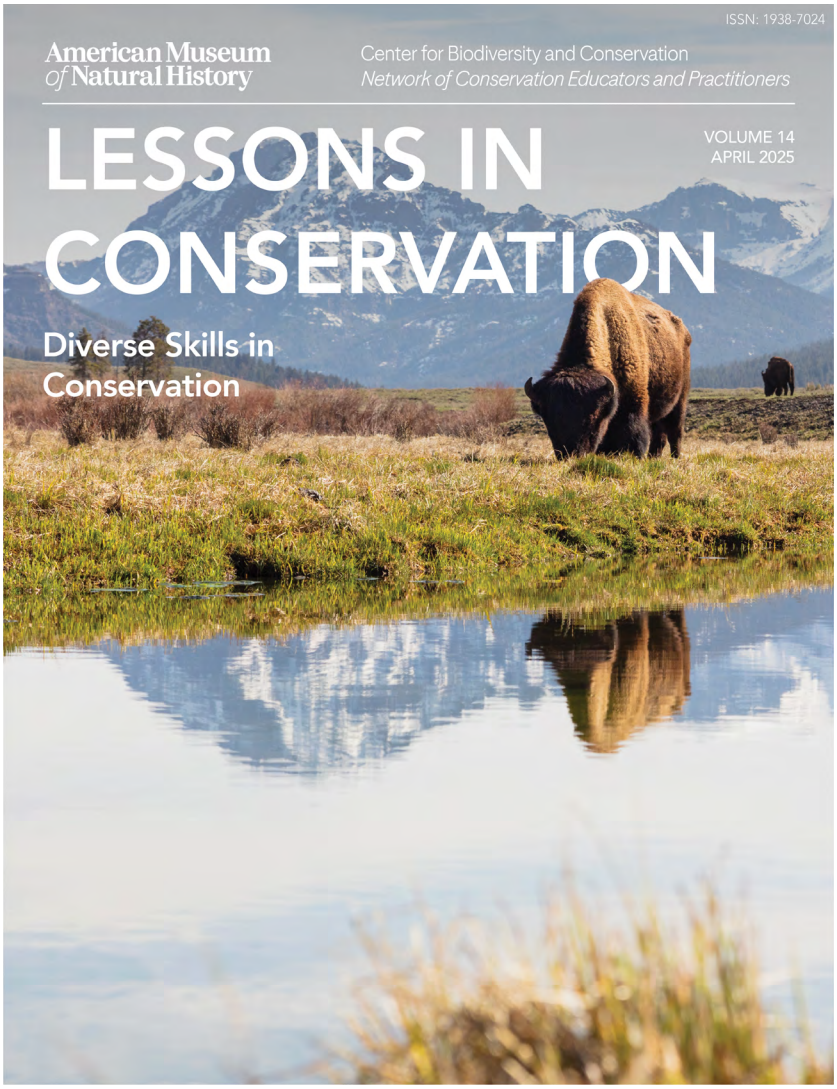
The publication of the most recent version of the CBC's species distribution modeling software platform Wallace in 2023 was awarded "Most Highly Cited Paper in 2024 among other papers published in the same year by the journal *Ecography*. Wallace was also used by colleagues in the Education Division to teach machine learning to high school students, as part of the Museum's Science Research Mentoring Program.

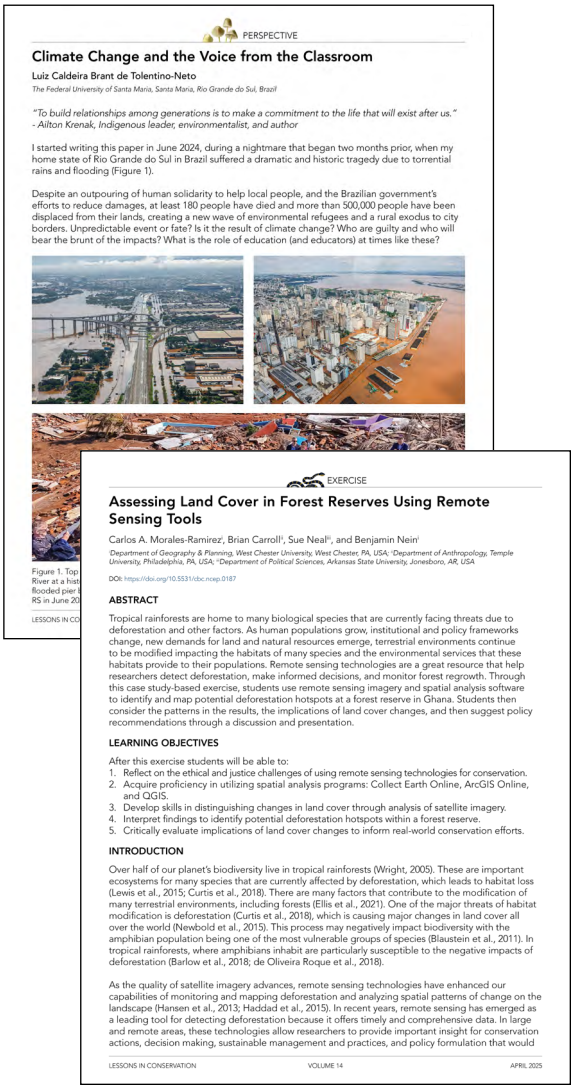
Capacity Development

The CBC is creating resources and spaces to train and empower conservationists everywhere.

In everything we do, we continue to prioritize open access learning resources, and the creation of environments where all academics, students, professionals, and community members can contribute solutions to urgent conservation problems.

The CBC's Network of Conservation Educators and Practitioners (NCEP) program published the 14th volume of its electronic journal *Lessons in Conservation*. We were thrilled to have long-time CBC collaborator, interdisciplinary scientist, and prolific conservation educator and author, Dr. Martha Groom, from the of University of Washington Bothell, as a guest editor with NCEP's Nadav Gazit and Dr. Suzanne Macey as co-editors. Following the theme "Diverse Skills in Conservation," the issue includes six student-facing materials that build students' skills such as nature journaling, analyzing and visualizing community science data (in this case, collected by the Billion Oysters Project), coding in the R software language to analyze long-term ecological datasets, and developing genetic research questions using museum specimens (i.e., museomics) that focus on conservation applications.




PERSPECTIVE

Climate Change and the Voice from the Classroom

Luiz Caldeira Brant de Tolentino-Neto

The Federal University of Santa Maria, Santa Maria, Rio Grande do Sul, Brazil

"To build relationships among generations is to make a commitment to the life that will exist after us."
- Ailton Krenak, Indigenous leader, environmentalist, and author

I started writing this paper in June 2024, during a nightmare that began two months prior, when my home state of Rio Grande do Sul in Brazil suffered a dramatic and historic tragedy due to torrential rains and flooding (Figure 1).

Despite an outpouring of human solidarity to help local people, and the Brazilian government's efforts to reduce damages, at least 180 people have died and more than 500,000 people have been displaced from their lands, creating a new wave of environmental refugees and a rural exodus to city borders. Unpredictable event or fate? Is it the result of climate change? Who are guilty and who will bear the brunt of the impacts? What is the role of education (and educators) at times like these?

EXERCISE

Assessing Land Cover in Forest Reserves Using Remote Sensing Tools

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ABSTRACT

Tropical rainforests are home to many biological species that are currently facing threats due to deforestation and other factors. As human populations grow, institutional and policy frameworks change, new demands for land and natural resources emerge, terrestrial environments continue to be modified impacting the habitats of many species and the environmental services that these habitats provide to their populations. Remote sensing technologies are a great resource that help researchers detect deforestation, make informed decisions, and monitor forest regrowth. Through this case study-based exercise, students use remote sensing imagery and spatial analysis software to identify and map potential deforestation hotspots at a forest reserve in Ghana. Students then consider the patterns in the results, the implications of land cover changes, and then suggest policy recommendations through a discussion and presentation.

LEARNING OBJECTIVES

After this exercise students will be able to:
1. Reflect on the ethical and justice challenges of using remote sensing technologies for conservation.
2. Acquire proficiency in utilizing spatial analysis programs: Collect Earth Online, ArcGIS Online, and QGIS.
3. Develop skills in distinguishing changes in land cover through analysis of satellite imagery.
4. Interpret findings to identify potential deforestation hotspots within a forest reserve.
5. Critically evaluate implications of land cover changes to inform real-world conservation efforts.

INTRODUCTION

Over half of our planet's biodiversity live in tropical rainforests (Wright, 2005). These are important ecosystems for many species that are currently affected by deforestation, which leads to habitat loss (Lewis et al., 2015; Curtis et al., 2018). There are many factors that contribute to the modification of many terrestrial environments, including forests (Ellis et al., 2021). One of the major threats of habitat modification is deforestation (Curtis et al., 2018), which is causing major changes in land cover all over the world (Newbold et al., 2015). This process may negatively impact biodiversity with the amphibian population being one of the most vulnerable groups of species (Blaustein et al., 2011). In tropical rainforests, where amphibians inhabit are particularly susceptible to the negative impacts of deforestation (Barlow et al., 2018; de Oliveira Roque et al., 2018).

As the quality of satellite imagery advances, remote sensing technologies have enhanced our capabilities of monitoring and mapping deforestation and analyzing spatial patterns of change on the landscape (Hansen et al., 2013; Haddad et al., 2015). In recent years, remote sensing has emerged as a leading tool for detecting deforestation because it offers timely and comprehensive data. In large and remote areas, these technologies allow researchers to provide important insight for conservation actions, decision making, sustainable management and practices, and policy formulation that would

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The module featuring this application of museomics to conservation is a product of an NSF-funded inter-institutional collaboration, including the Museum's scientists in the Institute for Comparative Genomics, the Herpetology Department, and Dr. Blair and Dr. Suzanne Macey from the CBC. The module includes a background document that details not only the scientific basis for the museomics field but also delves into the practical logistics of how to go about conducting your own work in the field and lab. The module also includes two different exercises that help students learn and practice crucial scientific skills: critically analyzing published research and theorizing their own research questions.

Additionally, this issue includes short perspective articles that help frame the current moment and our potential responses as educators. One of these highlights the need for responsive education and reflects on what this means for the author's region in Brazil, which underwent devastating climate-change influenced flooding in 2024. The piece argues for efforts to engage students in analyzing current environmental and climate risks as part of forging paths to resilience. Another perspective challenges instructors and students to include small random acts kindness in their classroom assignments and everyday actions as a mechanism to have tangible positive change in the world, and helps students who can feel overwhelmed and, at times, hopeless.

Continuing our series of "Lunch & Learn" webinars, in November 2024 NCEP hosted a 30-minute virtual gathering to share an NCEP exercise entitled "Managing Marine Seascapes Through Community-based Conservation" with 40 members of our network. During this session, two of the co-authors, from University of California, Irvine, presented a glimpse into the exercise wherein students act as community scientists to analyze real video-footage collected by SCUBA divers in a marine protected area in between the two main islands of Fiji.

Finally, as part of our capacity development activities, CBC scientists continue to provide mentoring to Richard Gilder Graduate School graduate students, and to high school students in the Museum's Science Research Mentoring program, including on science communication.

High school students discussing poster design during a recent training led by Nadav Gazit, CBC Visual Creative and Senior Research Assistant.
Photo: D. Kim/AMNH

Convening and Connecting

The CBC catalyzes connections across actors to innovate and gather strong evidence for action.

The CBC is part of a new Museum-wide Climate Impact Initiative aimed at driving action, education, research, and outreach, with initial funding from the National Oceanic & Atmospheric Administration (NOAA). This past March, this work was launched by convening a diverse group of 65 local partners who hold valuable experience in this area—including educators, community organizations, artists, and scientists in New York—to learn about each other's work, explore shared objectives, and co-create new ideas.

Participants spent the day "mapping" the work that is already happening in our region, across five themes: Support NYC Educators, Educate NYC youth and children, Build evidence around climate impacts on (and solutions for) New Yorkers (and NY life), Inform and inspire New Yorkers, and Serve and support NYC Communities. The gathering also allowed for networking and exploring potential new connections across our collective work. It was a productive and inspiring day that highlighted just how much work is already being done in this area in our City and region; and is bound to spark many new collaborations to amplify our efforts.

Photos: D. Kim/AMNH

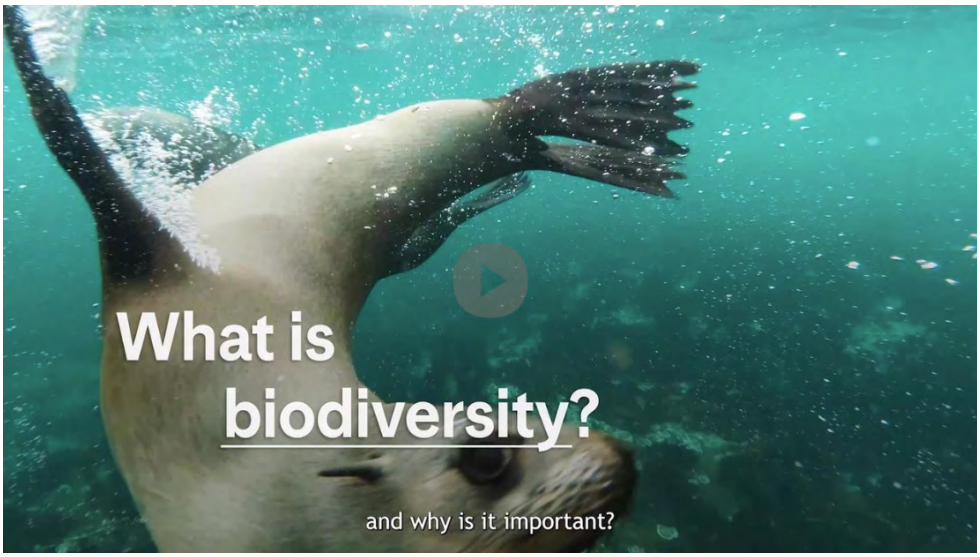
Dr. Gawel was a lead organizer of the 7th annual Mariana Islands Conservation Conference, held in Guam, March 10-14, 2025. Over 300 registrants tuned in in-person or online for this hybrid conference, which was opened by the Lieutenant Governor of Guam, Joshua Tenorio. Talks and posters at the conference covered a wide range of topics including marine and terrestrial research, conservation outreach, and traditional ecological knowledge. The conference also included a career night, awards for best student talk and best student poster, and a day of field trips led by local experts. The conference is organized annually by the conservation non-profit Tåno, Tåsi, yan Todu, of which Gawel sits on the board, and was free and open to the public thanks in part to funding from the Office of Insular Affairs.

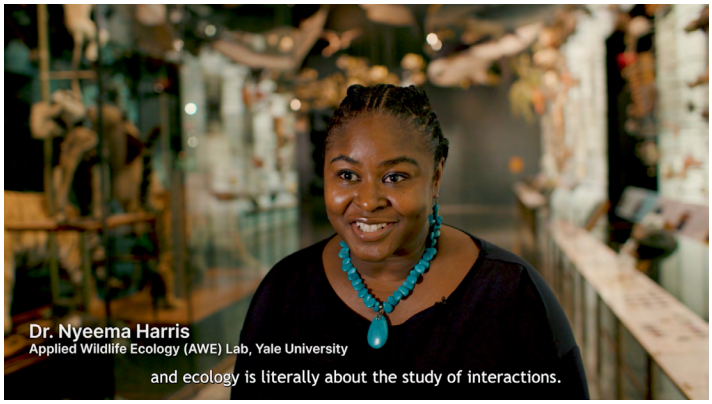
The CBC's five-year collaboration with the Integrated Natural Resource Management (INRM) Consortium, convened and funded by USAID, ended four months prematurely due to stop work orders issued in February. Fortunately, the CBC was able to complete its last project under this collaboration, an evidence review on how to enable transformative societal change and hopes to publish this work so that it may inform the conservation community at large. The collaboration with INRM generated significant knowledge products on the links between conservation and development outcomes. These were highlighted at a Learning Event held in December for USAID and INRM experts, where CBC Biodiversity Specialist Erin Betley presented on the CBC's work.

Exhibitions and Outreach

Catch the CBC online or onsite!

This past November, a new introductory video debuted in the Theodore Roosevelt Hall of Biodiversity. Dr. Porzecanski was the scientific advisor for the film, which included research from multiple experts at CBC and was developed in close collaboration with the Museum's Brett Peterson, Director of Exhibition Media and Interactives. The film highlights the urgency of biodiversity conservation and how each of us has a role to play; it suggests that we must rethink, reimagine, and rebuild the way we live on our planet.





The CBC continues to work closely with colleagues from the Museum's Public Programs Department to develop programming that addresses biodiversity and climate. Most recently, we partnered with *Terrestrials*, Radiolab's family nature podcast, during Earth Fest on April 5, 2025, for a set of family-friendly conversations on "The Monsters Among Us." The CBC will also be hosting our annual Mack Lipkin "Man and Nature" public event in conjunction with the Margaret Mead Film Festival on May 4, 2025.

Photos: D. Kim/AMNH

Media featuring CBC work or expertise included Marianas Press and Telemundo U.S.A.

Dr. Gawell explained how the conference expands spaces, conversations, and opportunities for everyone in the Marianas.

Dr. Porzecanski explained the effects of climate change on biodiversity for a special Telemundo report that aired nationally on Earth Day.

We continue to share our work through social media, you can find us on LinkedIn and Facebook!

Spring 2025

Publications

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- Clark, L.T., Salis, A.T., Penna, A., Coyle, M.S., Wallace, M., **Blair, M.E.** (2025). Applications of conservation museomics to the protection of the Iberian lynx (*Lynx pardinus*). *Lessons in Conservation* 14(1). https://doi.org/10.5531/cbc.linc.14.1.8
- Gosnell, J.S., Schreiber, K. (2025). Oysters in the City: Analyzing data to guide coastal restoration in New York City. *Lessons in Conservation* 14(1). https://doi.org/10.5531/cbc.linc.14.1.4
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- Penna, A., Clark, L.T., Salis, A.T., **Macey, S.K.** (2025). Applications of museum collections and genomics to biodiversity conservation. *Lessons in Conservation* 14(1). https://doi.org/10.5531/cbc.linc.14.1.7
- Penna, A., Wallace, M., **Macey, S.K.**, Clark, L.T., Pozzi, L., **Blair, M.E.** (2025). Designing a conservation genomics project incorporating DNA from museum specimens. *Lessons in Conservation* 14(1). https://doi.org/10.5531/cbc.linc.14.1.9
- Sambado, S., Briggs, C. J. (2025). Data analysis in R to gain insights for conservation: Examples from long-term ecological research. *Lessons in Conservation* 14(1). https://doi.org/10.5531/cbc.linc.14.1.5
- Tolentino Neto, L.C.B. (2025). Climate change and the voice from the classroom. *Lessons in Conservation* 14(1). https://doi.org/10.5531/cbc.linc.14.1.1

Presentations & Workshops Led

Barber, J.R. Experimental recreationist noise alters behavior and space use of wildlife. 46th Winter Animal Behavior Meetings. Steamboat Springs, CO. 18-25 January 2025.

Barber, J.R. Bat-moth arms race. 52nd North American Society for Bat Research. Guadalajara, Mexico, 26 October 2024.

Blair, M.E. Bridging Worlds - The Power of Knowledge Co-Production. Invited session moderator. Fourth International Conference on Arctic Research Planning, Arctic Science Summit Week, Boulder, CO. 26 March 2025

Gomez, A., Jabob, A., **Betley, E.B.** INRM Biodiversity and One Health Portfolio. INRM Learning Event. Washington, DC. 2 December 2024.

Johnson, B.A., Paz, A. Species Distribution Modeling for Conservation with Wallace EcoMod. Virtual Workshop for The International Biogeography Society. 22 November, 2024.

López-Lozano, D.F. Wallace: Un software para estimar la distribución de especies y cuantificar cambios en la biodiversidad. Invited virtual presentation to the workshop: "BioModelos Moderadores y Modeladores 2024." Instituto de Investigación de Recursos Biológicos Alexander von Humboldt. Bogotá DC, Colombia. 25 November 2024.

Mejia, A.M., Gutiérrez-Vélez, V., **Blair, M.E.** Simple post-processing workflows to support the implementation of the OPERA-DIST by the Colombia Protected Areas System. Invited Symposium Presentation (Podium). American Geophysical Union (AGU) Annual Meeting, Washington, DC 11 December 2024.

Moore, K. S., Ali, S., Lee, I., **Weckel, M.**, Gupta, P., Rabinowitz, G., & Chaffee, R. A Quasi-Experimental Study of the Introduction of Machine Learning Concepts to a High School Age Audience as Part of a Mentored Scientific Research Program. In Lindgren, R., Asino, T. I., Kyza, E. A., Looi, C. K., Keifert, D. T., & Suárez, E. (Eds.), Proceedings of the 18th International Conference of the Learning Sciences - ICLS 2024 (pp. 2321-2322). International Society of the Learning Sciences. Buffalo, NY. 10 June 2024. https://doi.org/10.22318/icls2024.110907

Porzecanski, A.L., Everyday Monsters. Interview with PBS Radiolab For Kids, Terrestrials. Earth Fest, American Museum of Natural History (AMNH). 5 April 2025.

Porzecanski, A.L., **Betley, E.**, **Blair, M.E.**, **Gazit, N.**, **Sigouin, A.** Biocultural Stewardship and Conservation. Presentation to Earth Network, New York, NY. 9 December 2024.

Media & Outreach

Gawel, A.M. Mariana Islands Conservation Conference commits to staying open. Featured interviewee. Marianas Press. 14 March 2025. https://sites.google.com/marianaspress.com/marianaspress/special-projects/mariana-islands-conservation-conference

Porzecanski, A.L. El Cambio Climático y su efecto en la biodiversidad. Featured interviewee on climate change and impacts on biodiversity. Telemundo Television. 22 April 2025.

Supporting Indigenous-led Conservation in Papua New Guinea. Columbia University, Center for Science and Society. Co-sponsored by CBC. 8 April 2025. New York, NY.