9th National Conference
on Science, Policy and the Environment

biodiversity
in a rapidly changing world

Program Contents

9th National Conference on Science, Policy and the Environment

Biodiversity in a Rapidly Changing World

AGENDA

** Sessions Located in Atrium Hall Unless Otherwise Noted*

Monday, December 8, 2008

8:00 am Registration, Exhibition, Poster Session Open; Continental Breakfast (*Atrium*)
9:00 am Keynote: Biodiversity in a Rapidly Changing World, *Cristiàn Samper*
10:00 am Plenary Roundtable: Biodiversity Value, Losses, and Consequences- What does the Science tell us?
11:00 am Plenary Roundtable: 21st Century Conservation- What Now?
12:15 pm Lunch (*on your own*)
1:30 pm Breakout Sessions (*concurrent*): Developing a New 21st Century Biodiversity Strategy for the US and the World (*various locations- see program*)
5:30 pm Special Posthumous Congressional Recognition, *Hon. James H. Scheuer*, New York
NCSE Lifetime Achievement Awards- *Peter Raven, George Rabb, E.O. Wilson*
6:30 pm 9th John H. Chafee Memorial Lecture on Science and the Environment- *Craig Venter*
7:30 pm Buffet Reception (*Atrium*)
8:30 pm Student and Young Professional Networking (*offsite- meet in Atrium*)

Tuesday, December 9, 2008

9:00 am Keynote: Hot, Flat, and Crowded- *Thomas Friedman*
Special Remarks: *Ahmed Djoghlaf*, Executive Secretary of the Convention on Biodiversity
10:30 am Symposia (*concurrent*) (*various locations- see program*)
12:30 pm Buffet Lunch (*with youth mentoring tables*)
2:00 pm Roundtable: Synthesis of Recommendations
3:30 pm Roundtable: Putting Biodiversity into the Next Administration and Congress
5:00 pm Program and Reception: Voices and Visions from the Next Generation of Conservationists and Honoring Young Environmentalists and featuring *Ahmed Djoghlaf*, Executive Secretary of the Convention on Biodiversity

Wednesday, December 10, 2008

Offsite locations around Washington, DC
9:00 am Skill-Building Workshops (*concurrent*)
Afternoon Visits to Congressional Representatives

Detailed Agenda

Note: Sessions Located in Atrium Hall Unless Otherwise Noted

8:00 am **Registration Opens,** Showcase of Biodiversity Partners Exhibition and Scientific Poster presentations open – Images of biodiversity by *Gary Braasch Photography* and *International League of Conservation Photographers* (*Atrium Hall*)

9:00 am **Welcome- *Ambassador Richard Benedick,*** NCSE President
Introduction- *Stephen Hubbell,* NCSE Co-Founder and Chairman, Distinguished Research Professor, University of California, Los Angeles
Keynote Address: Biodiversity in a Rapidly Changing World
***Cristián Samper*,** Director, National Museum of Natural History, Smithsonian Institution

10:00 am **Plenary Roundtable: Biodiversity Value, Losses, and Consequences- What Does the Science Tell Us? What are the Needs?**

- Moderator: ***Larry Nielsen*,** Provost and Executive Vice Chancellor, North Carolina State University, Member, NCSE Board of Directors
- Millennium Ecosystem Assessment- ***Harold Mooney***, Emeritus Professor, Department of Biological Sciences, Stanford University
- Biodiversity and Health- ***Eric Chivian***, Director, Center for Global Health and the Environment, and Assistant Clinical Professor of Psychiatry, Harvard Medical School
- Integrating Cultural and Biological Diversity- ***Claudia Sobrevila***, Senior Biodiversity Specialist, The World Bank
- Marine Biodiversity- ***Carl Safina,*** President, Blue Ocean Institute

11:00 am **Plenary Roundtable: 21st Century Conservation- What Now?**

- Moderator: ***Ron Pulliam***, Regents Professor of Ecology, University of Georgia, Member, NCSE Board of Directors
- ***Susan Haseltine,*** Associate Director for Biology, United States Geological Survey
- ***Jane Elder,*** Principal, Jane Elder Strategies
- ***William J. Sutherland,*** Miriam Rothschild Professor in Conservation Biology, Department of Zoology, University of Cambridge
- ***Lara Hansen,*** Chief Scientist and Executive Director, EcoAdapt

12:15 pm **Lunch on your own**

1:30 pm- 5:00 pm **Concurrent Breakout Sessions- Developing a New 21st Century Biodiversity Strategy for the U.S. and the World** *(Please Note: Sessions 9, 19, and 20 have been cancelled)*

Developing the New Biodiversity Science Agenda

01. Transforming the Role of Natural History Collections in Biodiversity Science *(Continental C)*
02. In a Future Distinctly Different from the Past, What Metrics Do We Use for Conservation? *(MD Classroom 120)*
03. Bridging the Divide: Putting Science in the Hands of Resource Managers *(JW Marriott Cannon)*
04. Millennium Ecosystem Assessment- The Next Steps, A Second Assessment? *(JW Marriott Commerce)*

05. Assisting Wildlife Adaptation to Climate Change: Managing Across the Landscape *(International Gateway)*

Moving from Science to Action (examining current approaches, developing new approaches, and tackling key issues)

06. Invasive Species and Biodiversity: Challenges and Recommendations for a Changing World *(MD Classroom 121)*
07. Population and Biodiversity *(JW Marriott Hart)*
08. Biomass, Biofuels, and Biodiversity *(Hemisphere A)*
10. Government Actions to Preserve Biodiversity in Developing Landscapes: From Frontiers to Metropolis *(Oceanic A)*
11. Building and Sustaining Conservation Partnerships *(MD Classroom 112)*
12. Zoos, Aquariums, and Botanical Gardens: Can Living Institutions Do More to Achieve Biodiversity Conservation? *(JW Marriott State)*
13. The Climate is Changing: What Will Happen and What Can a Natural Resource Manager Do? *(MD Classroom 114)*
14. Ecosystem Restoration- What Does Ecosystem Restoration Mean in a Rapidly Changing World? *(JW Marriott Rayburn)*
15. Scaling Biodiversity: Setting Local Conservation Goals in an Era of Rapid Global Change *(Horizon A)*
16. Endangered Species and Other Conservation Reliant Species *(JW Marriott Congressional)*
17. Mapping Conservation Landscapes Across Continents: The Future of Protected Areas in a Changing World *(JW Marriott Russell)*
18. Agricultural Landscapes and Natural Diversity *(Oceanic B)*
21. Integrating Cultural Diversity and Biological Diversity *(Horizon B)*
22. The Future of Biodiversity in Africa *(JW Marriott Treasury)*
23. Conserving Biodiversity in a Radically Changing Arctic *(Atrium Hall Mezzanine)*
24. Water for Biodiversity and Human Needs *(MD Classroom C1)*
25. Coral Reefs: Ensuring their Future Biodiversity and Survival *(Polaris A)*
26. Applying Marine Biodiversity Toward Better Ecosystem Management into the Next Decade *(Meridian D)*
27. The Global Loss of Amphibians *(Hemisphere B)*
28. Microbial Diversity *(Meridian E)*

Expanding Understanding: Information, Education, and Communication

29. Biodiversity Conservation: Employing Markets and Payments for Ecosystem Services *(JW Marriott Senate)*
30. Conservation Law and Policy Priorities for a New Administration and a New Congress *(Polaris B)*
31. Putting Biodiversity Back on the U.S. Political Agenda *(Polaris C)*
32. Ramping Up the Public Connection: Strategies and Tactics for Mobilizing Public Will for Biodiversity Conservation *(JW Marriott Salon J&K)*
33. Biodiversity in Environmental Education *(MD Classroom 115)*
34. Building an Adaptive Ark: Conservation Leadership in a Rapidly Changing World *(Continental B)*

5:30 pm **Special Posthumous Congressional Recognition- Hon. James H. Scheuer, New York**
David Blockstein, NCSE Conference Chair
NCSE Lifetime Achievement Awards

- Moderator: ***Rita Colwell,*** Distinguished University Professor, University of Maryland, Former Director, National Science Foundation, NCSE Board of Directors
- ***George Rabb,*** President Emeritus, Chicago Zoological Society

- ***Peter Raven,*** President Missouri Botanical Garden
- ***E.O. Wilson,*** Pellegrino Research Professor, Harvard University

6:00 pm **9th John H. Chafee Memorial Lecture on Science and the Environment**
A Genomic View of Life: *J. Craig Venter,* Founder, Chairman, and President, J. Craig Venter Institute
Welcome- *Ambassador Richard Benedick,* NCSE President
Introduction- *Rita Colwell,* Distinguished University Professor, University of Maryland, Member, NCSE Board of Directors

7:30 pm **Buffet Reception**

8:30 pm **Student and Young Professional Networking Expedition**
(Meet in Atrium Hall)

Monday Plenary Biographies

Keynote Address: Biodiversity in a Rapidly Changing World

Christián Samper is the Director of the Smithsonian Institution's National Museum of Natural History. Samper received a B.S. at the Universidad de Los Andes in Bogota, Colombia followed by a Masters and Ph.D. in Biology from Harvard University. He is widely known for his work in the Andean Cloud Forest, environmental policy, and conservation biology. He served as director of the environmental division of the Foundation for Higher Education in Colombia until 1995 and served as an adjunct professor. In 1995 he founded and became Director of the Alexander Humbodlt Institute in Colombia. He served as Chief Science Advisor for Biodiversity to the President of Colombia. In 2007-2008 he served as Acting Secretary of the Smithsonian.

Plenary Roundtable: Biodiversity Value, Losses, and Consequences- What Does the Science Tell Us? What are the Needs?

Larry Nielsen is Provost and Executive Vice Chancellor for Academic Affairs at North Carolina State University, a position he has held since July, 2005. Previously he was Dean of the College of Natural Resources at NC State, Director of the School of Forest Resources at The Pennsylvania State University and a faculty member and later head of the Department of Fisheries and Wildlife Sciences at Virginia Tech. He was President of the National Association of University Fisheries and Wildlife Programs and President of the American Fisheries Society. He co-chaired the First World Fisheries Congress, 1992, in Athens, Greece. He was a Kellogg National Fellow. He is a Fellow of the American Institute of Fisheries Research Biologists, and Honorary Member of the American Fisheries Society. He holds a B.S. from the University of Illinois, a M.S. from University of Missouri, and a Ph.D. from Cornell University. He served the U.S. Army in Vietnam. He is a member of the NCSE Board of Directors.

Harold Mooney is an emeritus professor of Ecology from Stanford University. He earned his Ph.D. at Duke University and was employed by University of California-Los Angeles. He joined Stanford University in 1968. He has served as chairman of the United States National Research Council Committee on Ecosystem Management for Sustainable Marine Fisheries. He has been a coordinator of the United Nations Global Biodiversity Assessment (1995). He has been president of the Ecological Society of America and he is a member of the National Academy of Sciences and a fellow of the American Academy of Arts and Sciences. He is also elected foreign member of the Russian Academy of Sciences and honorary member of the British Ecological Society. He was the 1990 recipient of the ECI Prize in terrestrial ecology. He has received the Max Planck Research Award in biosciences (1992; together with Ernst-Detlef Schulze) and been given the Eminent Ecologist Award for 1996 by Ecological Society of America. In 2007, he received the Ramon Margalef Prize in Ecology and Environmental Sciences.

Eric Chivian, M.D. is the Founder and Director of the Center for Health and the Global Environment and Assistant Clinical Professor of Psychiatry at Harvard Medical School, and Editor of Oxford University Press' new book *Sustaining Life: How Human Health Depends on Biodiversity*. He graduated from Harvard College with an A.B. in Biomedical Sciences and a M.D. from Harvard Medical School. In 1980, Chivian co-founded International Physicians for the Prevention of Nuclear War, which received the Nobel Peace Prize in 1985. In the May 2008 issue of Time Magazine, Chivian was listed as one of the World's Top 100 Most Influential People. Chivian works to improve the public and professional understanding of the changing global environment's impact on human health.

Claudia Sobrevila is Senior Biodiversity Specialist in the Environment Department at the World Bank. A Spanish national, she holds a degree in biology from the Central University of Venezuela, an M.A. and a Ph.D. in Ecology from Harvard University and a post-doctorate from the Smithsonian Institution. She leads analytical research & knowledge management initiatives: land tenure, protected areas and deforestation, indigenous people

and biodiversity conservation, trust funds for protected areas and, infrastructure and biodiversity. Since 1992, she has held several positions in the Latin America Region of the WB. She also was team leader during the design phase of a complex and ambitious project, the ARPA project in the Brazilian Amazon, one of the largest biodiversity conservation efforts in tropical countries. Prior to her position at the Bank, Dr. Sobrevila was Chief Ecologist at The Nature Conservancy. She was also Senior Director for the Andean Countries at Conservation International.

Carl Safina works to bring ocean issues to widespread public visibility. In the 1990s he helped lead campaigns to ban high-seas driftnets, re-write federal fisheries law in the U. S., work toward international conservation of tunas, sharks, and other fishes, and achieve passage of a United Nations global fisheries treaty. His writing now explores how the ocean is changing, and what those changes mean for wildlife and for people.
Safina, whose PhD in ecology is from Rutgers University, is author of several books, and more than a hundred scientific and popular publications on ecology and oceans. His first book, *Song for the Blue Ocean*, was chosen a New York Times Notable Book of the Year, a Los Angeles Times Best Nonfiction selection, and a Library Journal Best Science Book selection; it won him the Lannan Literary Award for nonfiction. His second book, *Eye of the Albatross*, won the John Burroughs Medal for nature writing and was chosen by the National Academies of Science, Engineering and Medicine as the year's best book for communicating science. Safina is also author of Voyage of the Turtle.
He has honorary doctorates from Long Island University and the State University of New York, and is adjunct full professor at Stony Brook University. He was named among "100 Notable Conservationists of the 20th Century" by Audubon magazine, a recipient of the Pew Scholar's Award in Conservation and the Environment and a World Wildlife Fund Senior Fellowship, recipient of Chicago's Brookfield Zoo's Rabb Medal, and winner of a MacArthur "genius" Fellowship, among other honors.

Plenary Roundtable: 21st Century Conservation- What Now?

Ron Pulliam has a distinguished academic career and has used his expertise in ecology and biological science in many different capacities. Dr. Pulliam is currently a professor at the University of Georgia's Institute of Ecology where he served as Director from 1987 to 1994. Dr. Pulliam has been a visiting scientist at Sussex University in Brighton, England, and a research biologist at the H.S. Colton Research Center, Museum of Arizona. In 1994 he was selected to be the Director of the National Biological Service Department of the Interior in Washington, D.C. then became the Science Advisor to the Secretary of the Interior in 1996. Dr. Pulliam's work outside the academic world has been extensive as well. He has served as the Vice President and President of the Ecological Society of America. In 1990, he joined the Executive Committee and became co-chair of the Advocacy Committee of the Georgia Conservancy. Governor Zell Miller appointed Dr. Pulliam to the Georgia Forest Lands Commission and the Georgia Environmental Education Council. Dr. Pulliam graduated from the University of Georgia in 1968 with a B.S. in Zoology and earned a Ph.D. in Zoology with a minor in Applied Mathematics at Duke University.

Susan Haseltine has been with the USGS for more than 10 years. Previously, she was Eastern Region Director for the former National Biological Service (NBS). She became Chief Scientist for Biology when the NBS joined the USGS in 1996. Prior to joining the NBS, she managed the Refuges and Wildlife program in the Upper Midwest in Minneapolis, Minn., for the U.S. Fish and Wildlife Service (FWS) after serving as the Center Director for the Northern Prairie Wildlife Research Center in Jamestown, N. Dakota. She joined the FWS as a researcher for the Patuxent Wildlife Research Center in Laurel, Md., and worked for more than a decade as a researcher and research manager. Haseltine has a M.S. and Ph.D. in zoology from Ohio State University and a B.S. in wildlife science from the University of Maine.

Jane Elder is the principal of Jane Elder Strategies, based in Madison, Wisconsin, an organization that helps advance positive social and environmental change. Before the creation of Jane Elder Strategies, Elder was the founding director of Biodiversity Project and received the 2002 Bay Foundation Biodiversity Leadership Award. Elder has headed the Midwest office of the Sierra Club, serving as National Director of Ecoregion Programs, and founding Sierra Club's Great Lakes Program. She holds a B.A. in Communications from Michigan State

University, and an M.S. in Land Resources from the University of Wisconsin.

***William J. Sutherland*'s** work attempts to establish and promote the practice of evidence-based conservation (particularly through the website Conservationevidence.com), establish environmental horizon scanning as a standard practice, bring global conservation practitioners together to agree to research questions of highest priority and establish the Gratis book scheme, which has sent 5,200 books to 152 countries. Dr. Sutherland is the Miriam Rothschild Professor of Conservation Biology at the University of Cambridge. His diverse research interests include looking at the impact of GM crops, human disturbance, agricultural change, climate change and the fate of languages. He is the author of *The Conservation Handbook* and *From Individual Behaviour to Population Biology*. He has also edited *Managing Habitats for Conservation, Ecological Census Techniques, Behaviour and Conservation, Conservation Science and Action,* and *Bird Ecology and Conservation: a Handbook of Techniques*.

Lara Hansen has directed research on the biological effects of global change (including UV-B and climate change) since 1990. Her primary focus is the redesign of conservation strategies to incorporate responses to climate change. She was the lead author of a key text on the issue of natural system adaptation to climate change, *Buying Time: A User's Manual for Building Resistance and Resilience to Climate Change in Natural Systems*. This manual lead to the development of an engaged stakeholder process (sometimes called Climate Camp) to help resource managers and conservation practitioners create adaptation strategies applicable to their work. She is currently engaged in developing the field of adaptation, building its capacity and getting it implemented through an organization she co-founded in 2008, EcoAdapt. Recognition for her research on the biological effects of stresses combined with global change is exemplified by being a Switzer Environmental Fellow in 1995 and an EPA Bronze Medalist in 2002. Dr. Hansen was the Chief Climate Change Scientist for World Wildlife Fund, leading their Impacts and Adaptations program, from 2001 to 2008. She also explains the effects of climate change and what can be done about them to a broad array of audiences, including government, media and academic institutions. She has also served on the Nobel Peace Prize awarded Intergovernmental Panel on Climate Change for over five years. She earned her Ph.D. in Ecology at the University of California, Davis (1998) and her B.A. in Biology from the University of California, Santa Cruz (1991). Her post-doctoral research was with the USEPA, Office of Research and Development, Gulf Ecology Division.

Special Posthumous Congressional Recognition

James H. (Jim) Scheuer (February 6, 1920 – August 30, 2005) served 13 terms as a Democratic member of the United States House of Representatives from New York City. He received a Bachelor's degree from Swarthmore College in 1942, a Masters degree from Harvard Business School in 1943, and a law degree from Columbia University Law School in 1948. Scheuer was elected to Congress in 1964. He played a key role in protecting the Environmental Protection Agency's regulatory powers during the Reagan administration. As Chairman of the Environment Subcommittee of the Committee on Science, Space and Technology, he educated Congress through hearings and legislation about biodiversity, air pollution, ozone depletion, climate change, human population growth and many other environmental issues. In 1986 following the National Forum on Biodiversity, Congressman Scheuer requested that the Congressional Office of Technology Assessment study and make recommendations to Congress on how to advance biodiversity science and conservation. That report, Technologies to Maintain Biological Diversity formed the basis of the National Biodiversity Conservation and Environmental Research Act that Scheuer introduced in Congress in 1988. The bill would have established a national biodiversity policy, an interagency strategy and a national biodiversity research center. Scheuer was an early advocate for action on climate change. A strong supporter of science, Scheuer was a lead sponsor of legislation to establish a National Institute for the Environment. An internationalist, Scheuer helped to organize and led the Global Legislators Organized for a Better Environment (GLOBE), where he was followed by Al Gore, and was an active member of the Interparliamentary Union. He served as the United States Director of the European Bank for Reconstruction and Development from 1994 until 1996.

Lifetime Achievement Award

Rita Colwell (moderator) is a member of the Board of Directors of the National Council for Science and the Environment (NCSE). Dr. Colwell served as Director of the National Science Foundation (NSF) from 1998 to February 2004, and as President of the University of Maryland Biotechnology Institute from 1991 to 1998, and is currently a Distinguished University Professor at the University of Maryland. Dr. Colwell has co-authored 16 books and over 600 scientific publications, and has received many awards, including the Medal of Distinction from Columbia University; the Gold Medal of Charles University, Prague; the UCLA Medal from the University of California, Los Angeles; and the Alumna Summa Laude Dignata from the University of Washington, Seattle. She holds a B.S. in Bacteriology and an M.S. in Genetics from Purdue University, and a Ph.D. in Oceanography from the University of Washington.

E.O. Wilson: A legendary biologist, Edward O. Wilson is considered the father of the modern biodiversity movement. He's been named one of America's 25 Most Influential People by *TIME* for his contribution to our understanding of the rich spectrum of Earth's biodiversity is incalculable. In his lectures, he makes a persuasive, eloquent plea to government, corporate and religious leaders to address the damage we have done to our planet--and to see the enormous benefits of doing so -- before it's too late. Proper stewardship and conservation of our ecosystem is not an option; if we are to continue to thrive -- on the only home we have -- it is a necessity. Wilson's works include *The Ants* and *On Human Nature*, which each won the Pultizer Prize; *The Future of Life,* which offers a plan for saving Earth's biological heritage; *Consilience*, which draws together the sciences, humanities, and the arts into a broad study of human knowledge; *The Creation*, a plea for science and religion to work together to save the planet; and *From So Simple a Beginning*, a collection of the four seminal works of Darwin, with new introductions by Wilson.
Wilson's newest project is The Encyclopedia of Life, a website that catalogs all key information about life on Earth -- including data about every living species -- and makes it accessible to everyone. Launched with money from his 2007 TED Prize, the EOL recently received an additional ten million dollars from The MacArthur Foundation. Wilson is also the recipient of the U.S. National Medal of Science, the Crafoord Prize (a sister to the Nobel), and the Audubon Medal. He is the Pellegrino University Research Professor, Emeritus, at Harvard, and continues his research on ants at the Museum of Comparative Zoology.

Peter Raven a leading botanist and advocate of conservation and biodiversity, is the current president of the Missouri Botanical Garden and George Engelmann Professor of Botany at Washington University in St. Louis. For more than 37 years, Dr. Raven has headed the Missouri Botanical Garden, an institution he has nurtured to become a world-class center for botanical research, education, and horticulture display. During this period, the Garden has become a leader in botanical research in Latin America, Africa, Asia, and North America. In addition, Dr. Raven is a Trustee of the National Geographic Society and Chairman of the Society's Committee for Research and Exploration. Dr. Raven is Co-editor of the Flora of China, a joint Chinese-American international project that is leading to a contemporary, 50-volume account on all the plants of China. He has written numerous books and publications, both popular and scientific, including Biology of Plants, the internationally best-selling textbook in botany, and Environment, a leading textbook on the environment. Dr. Raven has been described by TIME magazine as a "Hero for the Planet," and has received numerous prizes and awards, including the International Prize for Biology from the government of Japan; Volvo Environment Prize; the Tyler Prize for Environmental Achievement; the Sasakawa Environment Prize; and the BBVA Prize for Ecology and Conservation.
In 2001, Dr. Raven received the National Medal of Science, the highest award for scientific accomplishment in the United States. He served for 12 years as Home Secretary of the National Academy of Sciences, to which he was elected in 1977. He is also a member of the American Academy of Arts and Sciences and of the American Philosophical Society. Dr. Raven received his Ph.D. from the University of California, Los Angeles after completing his undergraduate work at the University of California, Berkeley.

George Rabb, Ph.D. is the President Emeritus of the Chicago Zoological Society, and served as Brookfield Zoo's director from 1976 until 2003. Rabb's pioneering work led the zoo towards its current position as a conservation center, a concept Rabb has championed for zoos everywhere. Rabb received both master's and doctoral degrees from the University of Michigan, Ann Arbor, and his bachelor's degree from the College of Charleston. He joined

Brookfield Zoo in 1956 as curator of research. Rabb created the zoo's Education Department and was instrumental in the use of naturalistic exhibitry to provide visitors with environmental immersion experiences throughout the zoo. Additionally, under Dr. Rabb's direction, the zoo pioneered a new approach to helping children develop caring attitudes towards nature. Dr. Rabb has affiliations with conservation organizations worldwide and is a respected spokesman on wildlife conservation issues. Most notably, he is past chairman (1989-1996) of the Species Survival Commission of IUCN, the largest species conservation network in the world, and he founded the Declining Amphibian Population Task Force. Rabb helped found and is still active in Chicago Wilderness, a multi-organizational consortium to maintain the exceptional biological diversity of the metropolitan region, and served as President of Chicago Wilderness Magazine until 2008. He was long a member of the University of Chicago's Committee on Evolutionary Biology. He is a research associate of The Field Museum and is on its board's Science Committee. Dr. Rabb is on the Illinois State Museum Board (Chairman until 2008) and is also on the boards of Defenders of Wildlife and The Center for Humans and Nature. Dr. Rabb published on the behavior of mammals, reptiles, and amphibians, notably on social behavior of a captive wolf pack, behavioral development in okapi, and breeding behavior of pipid frogs. His other studies have ranged from the evolutionary relationships of viperid snakes to diabetes in tree shrews.

9th John H. Chaffee Memorial Lecture on Science and the Environment

J. Craig Venter, Ph.D., is regarded as one of the leading scientists of the 21st century for his numerous invaluable contributions to genomic research. He is Founder and President of the J. Craig Venter Institute (JCVI), a not-for-profit, research and support organization with more than 400 scientists and staff dedicated to human, microbial, plant and environmental genomic research, the exploration of social and ethical issues in genomics, and seeking alternative energy solutions through genomics.

Dr. Venter began his formal education after a tour of duty as a Navy Corpsman in Vietnam from 1967 to 1968. After earning both a Bachelor's degree in Biochemistry and a Ph.D. in Physiology and Pharmacology from the University of California at San Diego, he was appointed professor at the State University of New York at Buffalo and the Roswell Park Cancer Institute. In 1984, he moved to the National Institutes of Health campus where he developed Expressed Sequence Tags or ESTs, a revolutionary new strategy for rapid gene discovery. In 1992 Dr. Venter founded The Institute for Genomic Research (TIGR), a not-for-profit research institute, where in 1995 he and his team decoded the genome of the first free-living organism, the bacterium *Haemophilus influenzae*, using his new whole genome shotgun technique. Dr. Venter and his teams have now sequenced hundreds of genomes using his techniques and tools.

In 1998, Dr. Venter founded Celera Genomics to sequence the human genome using new tools and techniques he and his team developed. The successful completion of this research culminated with the February 2001 publication of the human genome in the journal, Science. He and his team at Celera also sequenced the fruit fly, mouse and rat genomes. Dr. Venter and his team at the Venter Institute continue to blaze new trails in genomics research and have published numerous important papers covering such areas as the first complete diploid human genome, environmental genomics, and synthetic genomics.

Dr. Venter, one of the most frequently cited scientists, is the author of more than 200 research articles. He is also the recipient of numerous honorary degrees, public honors, and scientific awards, including the 2001 Paul Ehrlich and Ludwig Darmstaedter Prize, and the 2002 Gairdner Foundation International Award. Dr. Venter is a member of numerous prestigious scientific organizations including the National Academy of Sciences, the American Academy of Arts and Sciences, and the American Society for Microbiology.

Monday, December 8, from 1:30 to 5:00 pm

We will collectively develop a 21st century biodiversity science and conservation strategy through 30 concurrent breakout sessions. These sessions are facilitated participant discussions with the goal of generating science recommendations for addressing existing and future biodiversity threats. NCSE thanks the many individuals who have volunteered their time and expertise to organize and participate in these sessions. Because these are outcome-oriented working sessions, please plan to attend one session (generally the one for which you registered) for the entire time.

Please Note: Session organizers, moderators, and discussants may serve multiple roles within the sessions. Additionally Sessions 9, 20, and 21 do not appear on the program as they have been previously cancelled.

Developing the New Biodiversity Science Agenda

01. **Transforming the Role of Natural History Collections in Biodiversity Science** *(Continental C)*

Natural history collections are a key part of the infrastructure for scientific research that documents biodiversity. With the availability of new technologies and the pressing research and societal questions facing us today, the natural science collections community is recognizing the importance of working collaboratively and implementing new technologies to inform our understanding of biodiversity. These new technologies provide a myriad of opportunities to improve access to collections and to transform not only the way that scientists document biodiversity, but also the role of museums in land management, conservation of biodiversity, and public policy. This breakout session will explore the opportunities and challenges that present themselves to collections, and how collections can assist biodiversity science and conservation.

Organizer:

Alan Prather, Associate Professor, Michigan State University, Steering Committee Chairman, CollectionsWeb

Additional Discussants:

Quentin D. Wheeler, University Vice President Dean, College of Liberal Arts and Sciences Director, International Institute for Species Exploration, Arizona State University

Virginia M. Ullman Professor of Natural History and the Environment, School of Life Sciences; Arizona State University

Lucinda A. McDade, Chair of the Botany Department & Professor of Botany, Claremont Graduate University

Judith B. Friend, Director of Research, Rancho Santa Ana Botanic Garden

David P. Mindell, Dean of Science, Harry W. and Diana V. Hind Chair Curator of Ornithology, California Academy of Sciences

02. **In a Future Distinctly Different from the Past, What Metrics Do We Use for Conservation?** *(MD Classroom 120)*

Conservation goals have traditionally focused on restoring and maintaining genetic, species, and ecosystem diversity. In order to proactively prepare for climate change, however, we will need to develop new metrics with which to prioritize conservation areas and document success. We will need to find a balance between conserving ecosystem function and conserving biological diversity. When monitoring conservation success, two common approaches are ecological indicator species and adaptive management, but both approaches will need to be adapted for climate change. As species in an ecological community respond individually to climate change, identifying appropriate species for indicators becomes more complicated. Adaptive management will become increasingly valuable as an approach, but it is unclear what data needs to be collected, how that information fits with the national ecosystem indicator species discussed above, and how we implement a standardized approach.

Organizer:
Marni Koopman, Climate Change Scientist, National Center for Conservation Science and Policy
Additional Discussants:
Mark Anderson, Director of Conservation Science, Eastern U.S. Region, The Nature Conservancy
Robin O'Malley, Program Director, Environmental Reporting, Heinz Center
Greg Hayward, US Forest Service
Curt Flather, US Forest Service
Bethany Bradley, Princeton University
Dominick DellaSala, Executive Director, Conservation Science and Policy Program, National Center for Conservation Science and Policy
Marietta Eaton, Bureau of Land Management
Amy Keister, US Fish & Wildlife Service

03. **Bridging the Divide: Putting Science in the Hands of Resource Managers** *(JW Marriott Cannon)*
Science is the cornerstone of conservation but builders of conservation programs often have difficulty accessing science. This session will identify ways to bridge the divide between researchers and those who design and implement biodiversity conservation programs. Access to data and scientific literature – thousands of papers in hundreds of journals across dozens of disciplines - has improved, but even unlimited access can't give resource managers the time to find, analyze, and synthesize this body of knowledge. Knowledge gaps, uncertainty, and conflicting information are additional challenges. How can researchers get research to natural resource managers in a usable format? Can the research community develop a culture that expects researchers to work with natural resource managers to assure that science is incorporated regularly into natural resource management?
Organizers:
Ellen Paul, Executive Director, Ornithological Council
Gwenda L. Brewer, Science Program Manager, Maryland Department of Natural Resources
Additional Discussants:
Arpita Choudhury, Science and Research Liaison, Association of Fish and Wildlife Agencies
Tom Fish, National Coordinator, Cooperative Ecosystem Studies Units
Tom Serfass, Professor, Frostburg State University
Doug Miller, Professor, Penn State University
Kevin Whalen, Deputy Chief, USGS Cooperative Research Units
Michael Fry, Director, Conservation Advocacy American Bird Conservancy
Tim Jones, Science Coordinator, Atlantic Coast Joint Venture
Mary L. Klein, CEO and President, NatureServe

04. **Millennium Ecosystem Assessment- The Next Steps, A Second Assessment** *(JW Marriott Commerce)*
This session will develop recommendations to guide follow up activities to the Millennium Ecosystem Assessment (MA), which from 2001 to 2005 assessed the consequences of ecosystem change for human well-being. The MA involved the work of more than 1,360 experts worldwide. Their findings provide a state-of-the-art scientific appraisal of the condition and trends in the world's ecosystems and the services they provide, as well as the scientific basis for action to conserve and use them sustainably. A recent conference recommended the creation of an IPCC-like body to do ongoing global and regional assessments of biodiversity. We will consider how such a body might be formed, how to maintain its scientific credibility and its effectiveness in communicating to decisionmakers.
Organizer:
Anthony Janetos, Director, Joint Global Change Research Institute, Pacific Northwest National Laboratory
Additional Discussants:
Harold Mooney, Dept of Biological Sciences, Stanford University

05. **Assisting Wildlife Adaptation to Climate Change: Managing Across the Landscape** *(International Gateway)*
Session brings together government resource managers and researchers to discuss what is needed to assist wildlife adapt to the impacts of climate change. Studies have show that addressing climate change will require active management if vulnerable species are to adapt and survive. Thus, managers must work more closely with researchers to identify management-relevant questions and informational and monitoring needs. Discussants will explore opportunities and constraints to working in a more collaborative and active adaptive management

approach, across the longer spatial and temporal scales. Session will also explore how agencies could best work with the newly evolving National Climate Change and Wildlife Science Center within USGS to express their research needs and provide monitoring and impact results to refine their management approach under climate change.

Organizers:
Jean Brennan, Senior Climate Change Scientist, Defenders of Wildlife
Sue Haseltine, Chief Biologist, U.S. Geological Survey,
Dan Ashe, Science Advisor, U.S. Fish and Wildlife Service

Moving From Science to Action: Examining and Developing New Approaches

06. **Invasive Species and Biodiversity: Challenges and Recommendations for a Changing World** *(MD Classroom 121)*
The havoc wreaked by invasive species on native flora and fauna is second only to habitat destruction when accounting for the major threats to biodiversity worldwide. Combined with other stressors, invasive species can seal the fate of already vulnerable species, populations, or ecosystems. As the risk of species introductions continues to grow, it is incumbent on us to consider these issues. In this session, three discussants will provide a brief overview on how the problem of bioinvasions is relevant to biodiversity research, policy, and management. The remainder of the session we will be devoted to a facilitated discussion about the major issues and challenges related to bioinvasions, and the best responses and options.
Organizers:
Theresa Goedeke, Line Office Representative for National Oceanic and Atmospheric Administration- Aquatic Invasive Species Program
Gordon Brown, Invasive Species Coordinator and Liaison to the National Invasive Species Council, U.S. Department of Interior
Chris Dionigi, Assistant Director for Domestic Policy, Science, and Cooperation, National Species Council
Hannibal Bolton, Chief Division of Fish and Wildlife, U.S. Fish and Wildlife Service
Moderator:
Jamie Reaser, President, Ecos Systems Institute
Additional Discussants:
Peter Alpert, Research Ecologist, University of Massachusetts- Amherst
James Carlton, Professor of Marine Sciences, and Director of the Williams-Mystic Maritime Studies Program, Williams College
Dan Simberloff, Nancy Gore Hunger Professor of Environmental Studies, University of Tennessee

07. **Population and Biodiversity** *(JW Marriott Hart)*
This session will examine the impacts of rapid population growth on biodiversity, including habitat loss, changed land-use patterns, increased pollution, and other environmental impacts. We will explore methods of mitigation, including promotion of sustainable practices and slowing population growth by providing access to education and voluntary family planning services. We will also discuss ways to effectively incorporate discussion of population issues into relevant environmental research.
Organizer:
Stacie Murphy, Policy Associate, Population Connection
Additional Discussants:
Jason Bremner, Program Director--Population, Health, and Environment Program, Population Reference Bureau
Judy Oglethorpe, Managing Director--People and Conservation Program, World Wildlife Fund
Janet Edmonds, Director--Population & Environment Program, Conservation International

08. **Biomass, Biofuels and Biodiversity** *(Hemisphere A)*
Biofuels can reduce dependence on fossil fuels and net emissions of carbon dioxide to the atmosphere. Biofuels production is expanding rapidly in the United States and elsewhere, but potential impacts on biodiversity have not been fully explored. These

impacts are associated with changes in land use from food crops to feedstock production and from natural systems to agricultural systems. As production expands, it is critical to identify means to maintain and enhance biodiversity in agricultural landscapes and to preserve biodiversity in relatively pristine systems. This session will build on recent discussions sponsored by organizations including the Ecological Society of America, the Pinchot Institute for Conservation, and the National Research Council to focus on biodiversity and mechanisms to incorporate knowledge about biodiversity conservation into biofuels policy.

Organizer:

Clifford Duke, Director of Science Programs, Ecological Society of America

Additional Discussants:

Robin Jenkins, Dupont Central Research and Development Experiment Station

Liz Marshall, Economist, World Resources Institute

Dennis Ojima, Senior Scholar, Heinz Center for Science, Economics, and the Environment

Richard Pouyat, Research Forester, US Forest Service

Al Sample, President, Pinchot Institute for Conservation

10. **Government Actions to Preserve Biodiversity in Developing Landscapes: From Frontiers to Metropolis** *(Oceanic A)*

As human population and development pressures intensify and expand in large geographic areas, landscapes are increasingly fragmented by developed land uses, and resident biodiversity is increasingly compromised. The differences are ones of geographic scale, type of development pressures, the affected resources and biological communities, and the nature of effective government actions that can be taken to preserve landscapes and biodiversity. Discussants will present perspectives from different levels of U.S. government ranging from local land use authority and control, State Wildlife Action Plans and state conservation efforts, and federal programs aimed a protecting endangered species and biodiversity. The objective of this session will be to determine which government actions are most effective in conserving biodiversity at points along the urban-rural continuum and where sufficient government action is lacking.

Organizers:

Joe Tassone, Director, Land and Water Resources, Maryland Department Of Planning

Christine Conn, Director of Strategic Land Planning, Office for a Sustainable Future, Maryland Department of Natural Resources

Kim Lamphier, Education and International Outreach Coordinator, Maryland Department of the Environment

Additional Discussants:

Mark Humpert, Association of Fish and Wildlife Agencies

Julie H. Moore, Biologist, Branch of Candidate Conservation, Endangered Species Program, US Fish and Wildlife Service

11. **Building and Sustaining Conservation Partnerships** *(MD Classroom 112)*

This session will explore how conservation partnerships can most effectively engage individuals and organizations in protecting and restoring biodiversity. Amplifying the conservation action through partnerships– citizens, public and private entities, and government agencies – increases the likelihood of success, program sustainability, and ecosystem resilience. We will explore the conditions under which this can and has happened. Participants will craft a case statement on the direct benefits of these types of partnerships and their ability to most effectively leverage public conservation dollars to meet the most pressing, and often complex, biodiversity conservation priorities.

Organizers:

Melinda Pruett-Jones, Executive Director, Chicago Wilderness

Claire Cassel, Partnerships and Outreach Office Division Chief, Endangered Species, Fish, Wildlife and Parks, United States Department of the Interior, U.S. Fish and Wildlife Service.

Moderator:

Jackie Carrera, President and CEO of Baltimore's Parks and People Foundation

Additional Discussants:

Michael Andrews, Vice President and Senior Conservation Fellow, The Nature Conservancy

Mikki Collins, Wildlife Biologist, Oregon Field Office, U.S. Fish and Wildlife Service

Christopher Servheen, Grizzly Bear Recovery Coordinator, U.S. Fish and Wildlife Service

TJ Miller, Chief, Division of Endangered Species, Great Lakes-Big Rivers Region U.S. Fish and Wildlife Service

David Wise, Department of Biological Sciences & Institute for Environmental Science & Policy, University of Illinois at Chicago
Charlie Birney, Executive Director, The Brick Companies Foundation

12. **Zoos, Aquariums, and Botanical Gardens: How can living institutions do more to achieve biodiversity conservation?** *(JW Marriott State)*
Living Institutions serve as endangered species "arks" for propagation and scientific research. They are educational centers providing science and environmental programs to students and teachers. They provide recreation and inspiration to millions of visitors. Increasingly, they are i*n situ* conservation organizations, providing staff and resources to high-priority conservation sites and constituencies worldwide. They can be mentors to institutions and professionals around the globe, as well as advocates for political and social action. Few living institutions can engage in all these activities and no consensus exists on how limited resources should be deployed. This session will consider which activities are the highest priorities in terms of biodiversity conservation and will seek to produce priorities for how living institutions can maximize their individual and collective impacts.
Organizer:
Tom Naiman, Vice President and President-Elect of the International Zoo Educators Association, Board Member of the U.S. Partnership for Education for Sustainable Development
Additional Discussants:
George Amato, Director of the Center for Conservation Genetics at the American Museum of Natural History
Paul Boyle, Sr. Vice President for Conservation & Education at the Association of Zoos and Aquariums
Andrea Kramer, Executive Director of Botanic Garden, Conservation International- U.S.
Peter Raven, President, Missouri Botanical Garden
Kathleen Wagner, formerly Sr. Vice President of Conservation and Education, Philadelphia Zoo

13. **The Climate is Changing: What Will Happen and What Can a Natural Resource Manager Do?** *(MD Classroom 114)*
Climate change will affect ecosystems at all scales of biological organization and across all regions of the world. An understanding of the types of impacts and the ecological and human responses to these potential impacts is crucial for the conservation of ecosystem functions and services. The breakout session focuses on the results of three assessment reports that pertain to ecosystems and were completed through the US Climate Change Science Program (CCSP). The goals of the session are to (1) discuss implications of climate change for biodiversity and ecological systems, (2) discuss implementation of adaptation strategies in these systems with agencies and NGOs and (3) use results from the discussion to inform the science strategy of the Ecosystems Interagency Working Group of the CCSP.
Organizer:
Britta Bierwagen, co-chair, Ecosystems Interagency Working Group, U.S. Climate Change Science Program, U.S. EPA
Additional Discussants:
Susan Julius, EPA
Meg Walsh, Global Change Office, USDA
Colleen Charles, Conservation Scientist, USGS
Chris Haney, Defenders of Wildlife
Kathy O'Halloran, Olympic National Forest, USFS

14. **Ecosystem Restoration- What Does Ecosystem Restoration Mean in a Rapidly Changing World?** *(JW Marriott Rayburn)*
In a world of disintegrating ecosystems and declining biodiversity, ecosystem restoration is an important option for some critical areas. Yet climate change, human needs for water and natural resources create new environmental challenges, which mean that ecosystem restoration is as best a partial process. The session will explore the record of ecosystem restoration in the United States and globally, identify the role of restoration in maintaining and restoring biodiversity and make recommendations on ways in which large scale ecosystem restoration can enhance biodiversity in a dynamic human/ecological environment. Presentations will include the physical ecosystem context (T. Crisman), the human context (G. Milan), the policy context (D. Botkin) and a project focused vision for large scale restoration (J. Gritzner).
Organizer:
Leonard Berry, Director, Florida Center for Environmental Studies/Florida Atlantic University
Georgia Milan, Medical Doctor, Montana

Jeffrey Gritzner, Chair, Department of Geography, University of Montana
Additional Discussants:
Tom Crisman, Patel Professor of Environment, Patel Center for Global Solutions/ University of South Florida
Daniel Botkin, President, Center for the Study of the Environment, New York
Lee M. Talbot, Professor, George Mason University

15. **Scaling Biodiversity: Setting Local Conservation Goals in an Era of Rapid Global Change** *(Horizon A)*
Climate change, economic and social influences on land use, and energy policies are global forces that can have powerful effects on biological systems and habitats at local scales, where conservation action typically is focused. The challenge to conservationists, managers, and policy-makers is to develop goals and plans for fostering local biodiversity that incorporate the cascading effects of global processes. This breakout session will consider this challenge from the perspectives of both the conservation objectives and the global forces. Presentations will focus on scaling climate model projections, evaluating land-use change, and the roles of nongovernmental organizations and government agencies in conservation planning and management.
Organizer:
John A. Wiens, Chief Conservation Science Officer, PRBO Conservation Science
Additional Discussants:
Robert W. Corell, Vice President of Programs, The H. John Heinz III Center for Science, Economics, and the Environment
Craig R. Groves, Conservation Science Group, The Nature Conservancy
Adina Merenlender, Associate Coop Extension Specialist, The University of California, Berkeley
Paul R. Schmidt, Assistant Director for Migratory Birds, United States Fish and Wildlife Service

16. **Endangered Species and Other Conservation Reliant Species** *(JW Marriott Congressional)*
It has been called the end of nature, the end of the wild, and domestication of nature. Our relationship with Nature has changed. The traditional assumption that, once we identified an endangered species, we would identify the threats to its existence, develop and implement management actions that would mitigate or eliminate the threats, the species would increase in numbers and distribution reach predetermined recovery goals and be de-listed. The species no longer needs species specific management interventions. Eighty percent of species on the United States Endangered Species fail to meet that assumption. They require species specific management intervention for the foreseeable future. Participants will discuss the implications of conservation reliant species for policies, laws, and conservation practices for endangered species.
Organizer:
James Michael Scott US Geological Survey
Dale Goble, University of Idaho College of Law
Additional Discussants:
Michael Bean, Environmental Defense
Deborah Crouse, Endangered Species Program, US Fish and Wildlife Service

17. **Mapping Conservation Landscapes Across Continents: The Future of Protected Areas in a Changing World** *(JW Marriott Russell)*
This session's focus is to advance the design and implementation of continental-scale wildland networks as a biodiversity adaptation strategy to climate change. Much uncertainty exists regarding the pace, scale, and extent of changes in climate, ecological interactions, and land use, yet conservation science and practice must operate and evolve with this uncertainty. Potential alternative configurations and land management options for interconnected conservation landscapes should be based on the best available data, tools, and analyses. This session will provide an overview of approaches to large landscape conservation in a changing climate. We will discuss the application of climate model outputs and species distribution modeling techniques to understanding species response to climate change, and we'll present current integrative, interactive mapping efforts that can support continental-scale conservation planning.
Organizer:
Healy Hamilton, Director, Center for Biodiversity Research, California Academy of Sciences
Additional Discussants:
Dominick DellaSala, Executive Director of Conservation Science & Policy Programs, National Center for Conservation Science and Policy
Josh Lawler, Assistant Professor, College of Forest Resources, University of Washington

Frank Biasi, Director, Conservation Projects, National Geographic Maps
Tosha Comendant, Senior Conservation Scientist, Conservation Biology Institute

18. **Agricultural Landscapes and Natural Diversity** *(Oceanic B)*

Currently about 37% of the globally available land is agricultural. With a growing human population and the need for fiber and fuel there will be tremendous pressure to increase agricultural activities, some estimate by as much as a billion hectares by the year 2050. Thus, a significant portion of the world's current and future biodiversity is tied to farming, land management and land managers. This breakout session will explore biodiversity management and conservation in agricultural ecosystems, and especially the goods and services provided by biodiversity within and among farms, the necessity of balancing the needs for biodiversity with the requirement for the economic production of crops, and which sort of policies might be most effective in preserving biodiversity within agricultural landscapes.

Organizer:

Michael A. Bowers, National Program Leader, Cooperative State Research, Education & Extension Service, US Department of Agriculture

Additional Discussants:

Louise E. Jackson, John B. Orr Endowed Chair in the Environmental Plant Sciences Professor/Cooperative Extension Specialist, Dept. of Land, Air and Water Resources, University of California, Davis
Dr. Katherine Gross, Director and University Distinguished Professor, W.K. Kellogg Biological Station, Michigan State University
V. Ernesto Méndez, Assistant Professor of Agroecology & Environmental Studies, Department of Plant & Soil Science, University of Vermont
George Boody, Executive Director, Land Stewardship Project, Minnesota

21. **Integrating Cultural Diversity and Biological Diversity** *(Horizon B)*

Societies have deeply embedded cultural traditions that have positive and negative consequences on biodiversity. For example, tropical ecosystems, where most of the world's remaining biodiversity is found, is also home to indigenous societies with cultural knowledge of the sustainable use of local species for medicines, food, fodder and fiber. Such biocultural knowledge contributes to global conservation policy such as the UN Biodiversity Convention. Better awareness of the impact of cultural practices on biological resources can contribute to better informed policies and projects for biodiversity conservation and its sustainable use.

This session will explore how collaboration between the social and environmental sciences in crafting policy and projects can capture the complex biological and cultural factors that facilitate success in biodiversity initiatives. Discussants, who are leaders in policies and projects for biocultural conservation and sustainable use, will lead this session's participants in developing such recommendations for interest groups and policy makers.

Organizer:

Katy Moran, Director Emeritus, Healing Forest Conservancy

Additional Discussants:

Janis Alcorn, Founding Director, Biodiversity Support Program
Len Hirsch, Smithsonian Institution
Steven King, Vice President, Napo Pharmaceuticals

22. **Future of Biodiversity in Africa** *(JW Marriott Treasury)*

Biodiversity remains the fundamental basis of Africa's development, and underpins the well-being of current and future generations. However, climate change, population growth and globalization of trade pose serious threats. Opportunities must be seized building on successful conservation approaches and new innovation.

This breakout session will discuss how to mainstream biodiversity into development agendas, promote good conservation practices, and strengthen the role of social institutions in conservation. It will give feedback on a Vision Statement on "The Future of Biodiversity in Africa" developed by African conservation leaders in September 2008, and will draw upon experts and NCSE participants to brainstorm on turning this into action. Participants will make recommendations to guide the new US Administration and other partners on the future of biodiversity in Africa.

Organizer:

Nancy Gelman, Program Manager, Africa Biodiversity Collaborative Group

Moderator:

Keith Brown, Executive Vice President for Africa Programs, the Jane Goodall Institute

Mohamed Bakarr, Vice President, Conservation International
John Waugh, Senior Fellow, IUCN-The World Conservation Union
***Gabriella Richardson*-Temm**, Senior Program Officer-MPO, WWF
Diane Russell, Biodiversity and Social Science Specialist, U.S. Agency for International Development
Daudi Sumba, Director for Capacity Building & Leadership Development, African Wildlife Foundation

23. **Conserving Biodiversity in a Radically Changing Arctic** *(Atrium Hall Mezzanine)*
Climate change and industrial development are challenging the integrity of Arctic ecosystems like never before, with potentially drastic effects on Arctic biodiversity. Changes in habitats such as shrub and treeline advance, permafrost degradation, and sea ice loss are driving changes in distribution and abundance of arctic-adapted species. These changes are also leading to invasions by species formerly restricted to lower latitudes. At the same time, the human population of the Arctic is growing, and there is rapidly increasing interest in Arctic resource extraction and tourism. To complicate matters further, baseline data on plant and animal distribution and abundance is lacking or incomplete for much of the Arctic, making detection of changes difficult. In this session, we will identify data gaps, discuss threats to Arctic biodiversity, evaluate current biodiversity conservation efforts, and propose additional needs and opportunities for Arctic biodiversity conservation.
Organizer:
David Payer, Supervisory Ecologist, Arctic National Wildlife Refuge, U.S. Fish and Wildlife Service
Moderator:
Jim Kurth, Acting Assistant Director, National Wildlife Refuge System
Additional Discussants:
Brad Griffith, Assistant Unit Leader, U.S. Geological Survey, Cooperative Research Units, Alaska Cooperative Fish and Wildlife Research Unit, University of Alaska, Fairbanks

24. **Water for Biodiversity and Human Needs** *(MD Classroom C1)*
Freshwater habitats are changing more rapidly than any other component of the biosphere. Many of these changes pose enormous threats to both biodiversity and human wellbeing, with the main causes of freshwater species extinction—depletion and degradation of surface waters—also causing an inordinate amount of human misery. Upon examination, the actions to provide safe drinking water to poor people in less-developed countries often can contribute to freshwater biodiversity conservation, and vice versa. This session will explore how conservation and development efforts focused on fresh water can complement one another. It will aim to identify policy that promotes integrated efforts to improve long-term human access to safe water while maintaining freshwater habitat, species, and the ecosystem functions and services associated with them.
Organizers:
L.J. Gorenflo, Associate Professor, Department of Landscape Architecture, The Pennsylvania State University
Michael L. Smith, Senior Research Scientist, Center for Applied Biodiversity Science, Conservation International
Moderator:
Mark Van Putten, President, Conservation Strategy, LLC
Additional Discussants:
Christopher P. Carlson, National Groundwater Program Leader, U.S. Forest Service
John Sauer, Director of Communications, Water Advocates
Dennis Warner, Senior Technical Advisor, Water Supply, Sanitation, and Water Resources Development, Catholic Relief Services

25. **Coral Reefs: Ensuring their Future Biodiversity and Survival** *(Polaris A)*
Coral reef biodiversity is extremely rich, providing a broad suite of services to humankind. Unfortunately, these very precious ecosystems are rapidly declining. The objectives of this session are to: 1) Explore what is known about coral reef biodiversity and the observed rapid decline of these biological treasures due to a suite of stressors. 2) Based on the consensus of the scientific community, summarize what is presently known on the main threats to their biodiversity. 3) Examine the value of current protective measures, and 4) Explore innovative ways needed to ensure the future biodiversity and survival of coral reefs. Discussions during the session will be limited to topics associated to ecosystems associated with light dependent corals (0-100m).

Organizers:
Nathalie Valette-Silver, NOAA/NOS/National Centers for Coastal Ocean Science assisted by
Michael Dowgiallo, NOAA/NOS/NCCOS
Felix Martinez, NOAA/NOS/NCCOS
David Hilmer, NOAA/NOS/NCCOS
Vanessa Maxwell, NOAA/NOS/NCCOS
Lara Hinderstein, NOAA/NOS/NCCOS
Additional Discussants:
Marjorie Reaka, Professor, Department of Biology, University of Maryland
Billy Causey, National Marine Sanctuary Superintendent, NOAA
Katherine Andrews, Coral Program Manager, NOAA

26. **Applying Marine Biodiversity Toward Better Ecosystem Management into the Next Decade** *(Meridian D)*
Understanding biodiversity's role within an ecosystem is critical when addressing demands of various stakeholders, managers, and policy-makers. It is critical that policy makers and managers better recognize the extent to which biodiversity not only relates to ecosystem function, but is essential to sustaining human life. With the upcoming transition in U.S. administration, current efforts to better explain and understand biodiversity need to be examined more closely. The future of marine biodiversity research relies on the ability of successful programs and committed scientists to relate their findings, strategies and challenges to managers, decision-makers, and the public. This session hopes to explore how to better apply our current knowledge of marine biodiversity to ultimately guide future endeavors and ensure improved marine policies and management within the United States.
Organizer:
Michael Feldman, Census of Marine Life U.S. Program Coordinator, Consortium for Ocean Leadership
Additional Discussants:
Patricia Miloslavich, Professor, Department of Environmental Studies, Universidad Simón Bolívar and Senior Scientist of the Census of Marine Life Program
Steve Murawski, Director of Scientific Programs and Chief Science Advisor for NOAA Fisheries
Ellen Prager, President, Earth2Ocean Inc., and Chief Scientist, Aquarius Reef Base
Paul Sandifer, Senior Scientist for Coastal Ecology, NOAA National Ocean Service, Hollings Marine Lab and Census of Marine Life U.S. National Committee Member

27. **The Global Loss of Amphibians**
(Hemisphere B)
This session will focus on current scientific and conservation work to counter the recent worldwide tide of extinctions and population declines of amphibians, the prime example among vertebrate animals of the loss of biological diversity globally. Aspects to be considered are ongoing worldwide threats and the adequacy of responses under the Amphibian Conservation Action Plan; the nature and epidemiology of a principal cause of losses -- a pathogenic chytrid fungus; direct and synergistic effects of agrichemicals: consequences for ecosystems; climate change effects; and the state of emergency responses for critically threatened species.
Organizers:
Joseph Mendelson, Curator of Herpetology, Zoo Atlanta
James Collins, Professor, Arizona State University; Assistant Director, National Science Foundation- Biological Sciences
George Rabb, President Emeritus, Chicago Zoological Society
Additional Discussants:
Karen Lips, Associate Professor, Southern Illinois University
Rick Relyea, Associate Professor, University of Pittsburgh
Mike Lannoo, Professor, Indiana University-School of Medicine
Peter Daszak, Executive Director, Consortium for Conservation Medicine, Wildlife Trust
Kevin Zippel, Director, Amphibian Ark
Brian Gratwicke, Conservation Biologist, National Zoological Park

28. **Microbial Diversity** *(Meridian E)*
Microbial diversity encompasses the spectrum of variability among all types of microorganisms (bacteria, fungi, viruses and many more) in the natural world and as altered by human intervention. Microorganisms are essential for the earth to function. They play many roles both on land and in water, including being the first to colonize and ameliorate effects of naturally occurring and man-made disturbed environments. Because microorganisms are small, they are least known, and this gap in knowledge is particularly apparent for bacteria and other procaryotic organisms. Current evidence suggests there exist

perhaps 300,000 to 1 million species of procaryotes on earth yet only 3,100 bacteria are described. There are relatively poor connections between those who study microbial diversity and those who study other aspects of biodiversity, and microorganisms are often ignored in biodiversity research and conservation plans. This session will consider research needs for microbial diversity and also how to better engage microbial science into broader discussions of biodiversity research and conservation.

Moderator:

Robert M. Goodman, Executive Dean, School of Environmental and Biological Sciences, Executive Director, New Jersey Agricultural Experiment Station, Rutgers University

29. **Biodiversity Conservation: Employing Markets and Payments for Ecosystem Services** *(JW Marriott Senate)*

This session will (1) describe lessons learned from current programs that are implementing markets and payments for ecosystem services (PES) to achieve biodiversity conservation; (2) identify constraints and strengths of current approaches; and (3) discuss and propose a set of recommendations that would provide increased applicability and credibility for ecosystem service markets and payments for biodiversity conservation. The session will also address two questions: (1) can payments and markets for ecosystem services such nutrient recycling, carbon sequestration, etc. result in biodiversity conservation, and (2) can such market mechanisms as mitigation banking and trading for habitats and particular species result in attaining biodiversity conservation goals. The session will also address recommendations to measure and value the contribution of increased ecosystem services for conserving biodiversity.

Organizer:

Frank Casey, Director, Conservation Economics Program, Defenders of Wildlife

Additional Discussants:

Bruce Byers, Senior Associate, Associates for Rural Development, Inc.

Sara Vickerman, Senior Director, Defenders of Wildlife, NW Office

Randall Kramer, Professor of Resource and Environmental Economics, Duke University

Sarah Lynch, Director of Agriculture, World Wildlife Fund

Taylor Ricketts, Director, Conservation Science Program, World Wildlife Fund

30. **Conservation Law and Policy Priorities for a New Administration and a New Congress** *(Polaris B)*

This breakout session will draft recommendations on the use of existing laws and new legislation to help protect and responsibly use biodiversity. We will cover several major statutes and treaties, including the Endangered Species Act, the National Environmental Protection Act, the National Forest Management Act, the Marine Mammal Protection Act, and the Convention on Biological Diversity and its protocols. We will lead off by briefly reviewing the status of existing laws, and what may need to change to meet challenges to biodiversity in the present political and scientific context. Invited discussants will seed the discussion with their own ideas for change. Then we expect a lively open discussion, leading to concrete suggestions for the new Congress and Administration, as well as federal agencies responsible for administering the laws.

Organizers:

Elaine Hoagland, Independent Contractor

John Fitzgerald, Policy Director of the Society for Conservation Biology

Additional Discussants:

Bob Dreher, Vice President for Conservation Law of Defenders of Wildlife

Dinah Bear, former General Counsel of the Council on Environmental Quality

Lyle Glowka, Counsel to the Secretariat of the Convention on Biological Diversity

31. **Putting Biodiversity Back on the U.S. Political Agenda** *(Polaris C)*

Twenty years after national biodiversity legislation was first introduced in the US Congress, political support for protecting life's diversity remains minimal. There is considerable interest in protecting elements of biodiversity – charismatic and endangered species, agriculturally important genotypes, and spectacular and attractive ecosystem types. Despite scientific understanding of the interconnectedness of life, the challenges of even thinking about conserving the totality of genes, species, ecosystems and evolutionary and ecological processes and phenomena is daunting. Ironically, rapid global climatic disruption, now the greatest threat to biodiversity, has pushed biodiversity even further off the public and political agenda. Meanwhile, biodiversity continues to decline at an alarming, but generally unrecognized rate. This session will explore strategies for putting biodiversity back on the US political radar screen.

Organizer:
David Blockstein, Senior Scientist, National Council for Science and the Environment (NCSE)
Jason Patlis, Director for Government Relations, World Wildlife Fund
Additional Discussants:
Gillian Caldwell, Campaign Director, One Sky
Jim Tate, Potomac Institute
Jeff Wise, Policy Director, Pew Environmental Center, Pew Charitable Trusts
Amy Fraenkel, Director, Regional Office for North America United Nations Environment Programme
Bill Millan, Senior Policy Associate, The Nature Conservancy

Expanding Understanding: Information, Education, and Communication

32. **Ramping Up the Public Connection: Strategies and Tactics for Mobilizing Public Will for Biodiversity Conservation** *(JW Marriott Salon J&K)*

This session will build on the diverse communications capacities of participants to identify near-term opportunities and actions to apply the best practices of social change communications to biodiversity awareness and conservation actions. Resource people will be on hand to lead discussions on particular topics of interest to the participants, and we will also allow time for group discussion across topics. We will emphasize approaches that will produce "big shifts" rather than incremental steps.

Organizer:
Jane Elder, Principal, Jane Elder Strategies
Additional Discussants:
Carol Saunders, Department of Environmental Studies, Antioch University
Nora Bynum, Director for the Global Activities of Lessons in Conservation: the Network of Conservation Educators and Practitioners, and Associate Director for Capacity Development at the Center for Biodiversity Conservation of the American Museum of Natural History
Rob Riordan, Director of Marketing and Communications, NatureServe
Rabbi Daniel Swartz, Spiritual Leader of Temple Hesed of Scranton
Jill Allread, Owner, Public Communications Inc.

33. **Biodiversity in Education: Training the Next Generation of Scientists and Achieving Literacy for Decision-makers and the Public** *(MD Classroom 115)*

A knowledge and understanding of biodiversity is the foundation for addressing the challenges facing the scientific community in developing the science tools to conserve biodiversity in the face of unprecedented threats such as climate change. It is also a necessity for effective policy-making that must be made rapidly if we are to sustain biodiversity. The barriers to biodiversity education need to be addressed and a blueprint for the most efficient mechanisms and effective messages to educate the various audiences needs development. We will focus on short-term and long-term goals for biodiversity education that meets the needs of resource managers and policy makers, the workforce in public and private research, and a biodiversity literate public who can make informed personal and political decisions.

Organizers:
Rachel Muir, Imperiled Species Coordinator, U.S. Geological Survey
Jennifer Sevin, Biodiversity Conservation Specialist, Center for Conservation Education and Sustainability, Smithsonian Institution
Moderator:
Jay Vavra, Biology Teacher, High Tech High, San Diego; High School Biology Director of E.O. Wilson's Life on Earth Project
Additional Discussants:
George Middendorf, Professor, Howard University
Steven Monfort, Associate Director of Science, Smithsonian National Zoo
Mary Barber, Senior Environmental Scientist, RTI International

34. **Building an Adaptive Ark: Conservation Leadership in a Rapidly Changing World**
(Continental B)
Biodiversity conservation in the 21st century brings unprecedented challenges that require new leadership and new forms of leadership at many levels. There is a great need for leaders who can integrate across science, policy, and management fields—and do so in manner that is adaptive to rapidly changing social and ecological conditions. This breakout session will develop a set of recommendations for improving leadership capacity for biodiversity conservation, drawing on the experience of panel members and participants. Recommendations will be sent to several audiences including the new US administration, executive leaders and human resource departments in key agencies and NGOs, university administrators, and boards of professional conservation and environmental societies.
Organizers:
Jim Manolis, Science Policy Consultant, Minnesota Department of Natural Resources
Cynthia Robinson, Director, Science & Technology Policy Fellowships, AAAS
Additional Discussants:
Kimberly Roberts, Executive Director, Environmental Leadership Program
Alan Thornhill, Executive Director, Society for Conservation Biology (host of the D.H. Smith Fellowship Program)
Lissa Widoff, Executive Director of the Robert and Patricia Switzer Foundation
Pam Sturner, Managing Director, Aldo Leopold Leadership Program

Detailed Agenda

Note: Sessions Located in Atrium Hall Unless Otherwise Noted

9:00 am **Keynote Lecture: Hot, Flat, and Crowded**

- ***Thomas Friedman,*** *New York Times* columnist and Pulitzer Prize winning author
- Special Remarks, ***Ahmed Djoghlaf,*** Executive Secretary, Convention on Biodiversity

10:00 am **Book Signing: *Thomas Friedman*:** *Hot, Flat, and Crowded, (Atrium Hall, Mezzanine)*

10:30 am **Concurrent Symposia**

01. Ocean Biodiversity *(Polaris B)*
02. Communicating About Biodiversity with Cutting Edge Approaches *(Hemisphere A)*
03. Human Health and Biodiversity *(International Gateway)*
04. Forests for Tomorrow: National Commission on Science for Sustainable Forestry (NCSSF/NCSE) *(Polaris C)*
05. Funding for Biodiversity Conservation *(Horizon A)*
06. Can Climate Policies Help Save the Biodiversity of Tropical Forests? *(Meridian D&E)*
07. Political, Economic, and Ethical Contexts of Biodiversity Conservation *(Hemisphere B)*
08. Human-Dominated Landscapes *(Oceanic A&B)*
09. Freshwater Ecosystems *(Continental B)*
10. Agriculture: From Genes to Landscapes *(Continental C)*
11. Bio-prospecting, Bio-mimicry, and Bio-products *(Polaris A)*
12. Exploring Earth's Species, Writing the Encyclopedia of Life *(Horizon B)*

12:30 pm **Lunch**, *Youth and Student Mentoring Tables*- Mentoring tables open for participants interested in speaking and interacting with the youth and students at the conference.
Poster Presentations- Poster participants will be present in the Atrium Hall for discussion.
Book Signing: ***Lynne Cherry***, *How We Know What We Know about Our Changing Climate: Scientists and Kids Explore Global Warming,* ***Carl Safina,*** *Song For The Blue Ocean, Eye of the Albatross, Voyage of the Turtle,* ***Eric Chivian,*** *Sustaining Life: How Human Health Depends on Biodiversity (Atrium Hall, Mezzanine, Upper Level)*

2:00 pm **Roundtable: Synthesis of Recommendations**

- Moderator: ***Thomas Lovejoy***, President, The H. John Heinz III Center for Science, Economics, and the Environment
- ***Sir Peter Crane,*** John and Marion Sullivan University Professor, University of Chicago and **,** Former Director of Kew Gardens
- ***Ann Bartuska,*** Deputy Chief for Research and Development, USDA Forest Service, Research and Development
- ***Peter Seligman,*** Chairman and CEO, Conservation International
- ***John Wiens,*** Chief Conservation Science Officer, PRBO Conservation Science

3:30 pm **Roundtable: Putting Biodiversity into the Next Administration and Congress**

- Moderator: ***Bruce Babbitt,*** Former Secretary of the Interior
- ***Mary Glackin,*** Assistant Administrator, National Oceanic and Atmospheric Administration
- ***Lynn Scarlett,*** Deputy Secretary for the Interior, U.S. Department of the Interior
- ***Rodger Schlickeisen,*** President, Defenders of Wildlife

5:00 pm **Biodiversity: Voices and Views of the Next Generation: Interactive Presentation and Reception**
Honoring Young Environmentalists and featuring *Ahmed Djoghlaf*, Executive Secretary of the Convention on Biodiversity
(Sponsored by Defenders of Wildlife, Center for Biological Diversity, Conservation International, Convention on Migratory Species Secretariat, International Union for the Conservation of Nature- U.S., Society for Conservation Biology, The Nature Conservancy, Union of Concerned Scientists, Wildlife Conservation Society, and World Wildlife Fund)

Voices and Visions from the Next Generation of Conservationists

VIDEO CONTEST OVERALL WINNER:
"Students of Consequence"
Megan Morikawa and Zachary Sheffer
California

Category: Ages 12-14

Winner:
"Chicks and Ticks" Jordan L. Reitz
Pennsylvania

Runner-Up:
"WWF" Rachel Kite
Texas

Category: Ages 15-18

Winner:
"Tortoise Tracks- The Movie"
Corrine Cowan, Katelyn Louton, Cris Molina, Alex Munncy, Eena Singh
California

Runner-Up:
"Pembina Gorge- Biodiversity and Deer Conservation"
Mickelle Arens, Christina Carignan, Jared Lorz, Kelsey King, and Sebastian Schill
North Dakota

Category: Ages 19-22

Winner:
"Our World, Our Fate: A Look at the Importance of Biodiversity"
David Bonanno, Cameron Etienne, Aaron Harrington, Dylan ReBois, Emilie Wolfson
Maryland

Runner-Up:
"A Day in the Garden with the Advanced Explainers"
Stephanie Abiva, Corina Apiricio, Augustine Diaz, Howard D'Oyley, Sadia Romain
New York

Congratulations to our winners and thank you to all our "Voices and Visions from the Next Generation of Conservationists" Youth Contest participants for their hard work in stepping up to the many challenges facing the state of biodiversity. NCSE also wishes to extend a special thank you to our judges and the DC Environmental Film Festival for showcasing our top winners in their 2009 program. All of the videos listed here can be viewed on our website- www.ncseonline.org/conference/biodiversity.

Keynote Address: Moving from Science to Action

Thomas L. Friedman**,** a world-renowned author and journalist, joined The New York Times in 1981 as a financial reporter specializing in OPEC- and oil-related news and later served as the chief diplomatic, chief White House, and international economics correspondents. Friedman has reported on the Middle East conflict, the end of the cold war, U.S. domestic politics and foreign policy, international economics, and the worldwide impact of the terrorist threat. Friedman currently writes a syndicated column for the New York Times on related issues. Friedman is the author of *From Beirut to Jerusalem* (FSG, 1989), which won both the National Book Award and the Overseas Press Club Award in 1989 and was on the New York Times bestseller list for nearly twelve months. *From Beirut to Jerusalem* has been published in more than twenty-seven languages, including Chinese and Japanese, and is now used as a basic textbook on the Middle East in many high schools and universities. Friedman also wrote *The Lexus and the Olive Tree* (FSG, 1999), one of the best selling business books in 1999, and the winner of the 2000 Overseas Press Club Award for best nonfiction book on foreign policy. It is now available in twenty languages. In 2005, *The World Is Flat* was given the first Financial Times and Goldman Sachs Business Book of the Year Award, and Friedman was named one of America's Best Leaders by U.S. News & World Report. His latest book, *Hot, Flat, and Crowded* (FSG 2008), brings a fresh outlook to the crises of destabilizing climate change and rising competition for energy. Friedman will be signing copies of *Hot, Flat, and Crowded* following his lecture.

Ahmed Djoghlaf assumed the position of Executive Secretary of the Convention on Biological Diversity (CBD) on January 3, 2006. He was named to his previous position as Assistant Executive Director of United Nations Environment Programme in June 2003, following his success as Director and Coordinator of UNEP's Division of the Global Environment Facility (GEF). He was Vice Chairman of the Eleventh Session of the Intergovernmental Committee on Science and Technology for Development and Vice President of the Negotiating Committee on the Framework Convention on Climate Change as well as Chair of one of the two negotiating committees of the Convention to Combat Desertification.
His numerous positions at the CBD included Acting Principal Officer on intergovernmental issues and cooperative arrangements at the Secretariat, during which time he was in charge of meetings including the First and Second Conferences of the Parties. Prior to joining the United Nations, Dr. Djoghlaf held a variety of posts in the Algerian Ministry of Foreign Affairs. He was advisor on environmental issues to the Prime Minister of Algeria and, prior to that, to three Ministers of Foreign Affairs of Algeria. He holds a Ph.D. from the University of Nancy, France, as well as four other post graduate degrees including Master of Arts, Government and Politics from St. John's University, New York and a Law degree from the University of Algiers. Dr. Djoghlaf holds the rank of Minister Plenipotentiary of the Ministry of Foreign Affairs and Assistant Secretary General of the United Nations.

Roundtable: Synthesis of Recommendations

Thomas Lovejoy has been President of The H. John Heinz III Center for Science, Economics, and the Environment since May 2002. Before coming to The Heinz Center, he was the World Bank's Chief Biodiversity Advisor and Lead Specialist for Environment for Latin America and the Caribbean and Senior Advisor to the President of the United Nations Foundation. Dr. Lovejoy has been Assistant Secretary and Counselor to the Secretary at the Smithsonian Institution, Science Advisor to the Secretary of the Interior, and Executive Vice President of the World Wildlife Fund–U.S. He conceived the idea of the Minimum Critical Size of Ecosystems project, originated the concept of debt-for-nature swaps, and is the founder of the public television series *Nature*. In 2001 he was awarded the prestigious Tyler Prize for Environmental Achievement. Dr. Lovejoy served on science and environmental councils or committees under the Reagan, Bush, and Clinton administrations. He received his B. S. and Ph.D. (biology) degrees from Yale University.

Sir Peter Crane is The John and Marion Sullivan University Professor at The University of Chicago and holds his appointment in the Department of the Geophysical Sciences. He is known internationally for his work on the diversity of plant life - its origin and fossil history, its current status, and its conservation and use. He received his BSc and PhD degrees in botany from the University of Reading, UK. He also served on the faculty of the University of Reading from 1978 to 1981. In 1981 he came to Indiana University and he joined the Field Museum in Chicago in 1982. From 1992 to 1999 he served as Director of the Field Museum with overall responsibility for the Museum's scientific programs. During this time he established the Field Museum Office of Environmental Programs and the Center for Cultural Understanding and Change. From 1999 to 2006 Peter Crane was Director of The Royal Botanic Gardens, Kew in the UK. In 2002 Kew was inscribed on the UNESCO list of World Heritage Sites. Professor Crane was elected to the Royal Society - the UK academy of sciences in 1998. He is a Foreign Associate of the US National Academy of Sciences, a Foreign Member of the Royal Swedish Academy of Sciences, and a Member of the German Academy Leopoldina. He was knighted in the UK for services to horticulture and conservation in 2004. Dr. Crane currently serves on the Board of WWF-UK.

Ann Bartuska became the Deputy Chief for Research & Development in January 2004. She returned to the Forest Service from The Nature Conservancy where she held the position of Executive Director of the Invasive Species Initiative. Prior to this, she was the Director of the Forest and Rangelands staff in the Forest Service in Washington, DC. She is an ecosystem ecologist with degrees from Wilkes College (B.S.), Ohio University (M.S.) and West Virginia University (Ph.D.). Her past research has focused on ecosystems processes in landscapes disturbed by coal mining. Dr. Bartuska currently co-chairs the Ecological Systems subcommittee of the CENR (Committee on Environment and Natural Resources) of the federal Office of Science and Technology Policy. She is active in the Ecological Society of America, serving as Vice-President for Public Affairs from 1996 – 1999 and as president from 2002-2003. She has served on the Board of the Council of Science Society Presidents and is a member of the Society of American Foresters.

Peter Seligmann co-founded Conservation International in 1987 and has been a leader in conservation efforts for the past 25 years. During his stewardship, CI has earned a reputation as an organization on the cutting edge of conservation, creating innovative and lasting solutions to biodiversity and sustainable development problems. He has developed strong conservation partnerships between CI and leaders in industry, science, government and entertainment, both in the United States and abroad. He continues to prove that people can live in harmony with our natural surroundings. Under Seligmann's leadership, CI has pioneered conservation tools that are economically sound, scientifically based and culturally sensitive. CI has grown to be a major international conservation leader with field offices in 45 countries and major influences in science and business. Mr. Seligmann serves on the advisory councils of the Jackson Hole Land Trust, Ecotrust and other not-for-profit organizations, including the Wild Salmon Center. President Clinton named him a member of the Enterprise for the Americas Board in 2000. He began his career in 1976 at The Nature Conservancy, serving as the organization's western region land steward. He later became Director of the California Nature Conservancy. Mr. Seligmann has a Masters of Science in Forestry and Environmental Science from Yale University and a Bachelor of Science in Wildlife Ecology from Rutgers University and an Honorary Doctorates in Science from Michigan State University and Rutgers University.

John Wiens grew up in Oklahoma as an avid birdwatcher. Following degrees from the University of Oklahoma and the University of Wisconsin-Madison (M.S., Ph.D.), he joined the faculty of Oregon State University and, subsequently, the University of New Mexico and Colorado State University, where he was a Professor of Ecology and University Distinguished Professor. His work has emphasized landscape ecology and the ecology of birds, leading to over 200 scientific papers and 7 books.
John left academia in 2002 to join The Nature Conservancy as Lead Scientist, with the challenge of putting years of classroom teaching and research into conservation practice in the real world. In 2008, he joined PRBO Conservation Science as Chief Conservation Science Officer. His aim is to build on the long-standing work of PRBO on bird populations to address conservation in a rapidly changing world – "conservation futures." Climate change is affecting species distributions, economic globalization is altering land uses, and demands for the goods

and services provided by nature are changing how people relate to nature. John is working with PRBO staff and partners to develop guidance for assessing the impacts of these changes and how management practices can help natural systems adapt.

Roundtable: Putting Biodiversity into the Next Administration and Congress

Bruce Babbitt served as Secretary of the Interior from 1993 to 2001, leading the country in landmark efforts including creation of a forest plan for the Pacific Northwest, restoration of the Florida Everglades, passage of the California Desert Protection Act, and legislation for the National Wildlife Refuge System. Before President Clinton appointed him to national service, Babbitt served as Governor of Arizona from 1978 to 1987 and as Attorney General of the state from 1975 to 1978. Babbitt wrote *Cities in the Wilderness* (2005), in which he lays out a new vision of land use in America, addressing a breadth of issues from protection of the Everglades to restoration of tall grass prairie in Iowa to water development in Arizona, wolf restoration in Yellowstone, grazing rights in the Southwest, and dam removal across the country. Bruce Babbitt earned degrees in geology and geophysics from the University of Notre Dame and the University of Newcastle on Tyne in England, which he attended on a Marshall Scholarship. He received his law degree from Harvard Law School.

Mary Glackin has been the Deputy Under Secretary for Oceans and Atmosphere since December 2, 2007. She is responsible for the day-to-day management of the National Oceanic and Atmospheric Administration's (NOAA) domestic and international operations. Glackin has more than 15 years of senior executive level experience working in numerous NOAA line offices. She served as the acting Assistant Administrator for Weather Services and Director, National Weather Service from June 12, 2007, through September 15, 2007. Before that, she was the Assistant Administrator for NOAA's Office of Program Planning and Integration. From 1999 until 2002, she served as the Deputy Assistant Administrator for the National Environmental Satellite, Data, and Information Service of NOAA. From 1993 to 1999, she worked as the Program Manager for the Advanced Weather Interactive Processing System (AWIPS) with the National Weather Service (NWS), NOAA. Prior to this, Ms. Glackin was both a meteorologist and computer specialist in various positions within NOAA where she was responsible for introducing improvements into NWS operations by capitalizing on new technology systems and scientific models. She is the recipient of the Presidential Rank Award (2001), Charles Brooks Award for Outstanding Services to the American Meteorological Society, the NOAA Bronze Medal (2001), the Federal 100 Information Technology Manager Award (1999), the NOAA Administrator's Award (1993), and the Department of Commerce Silver Medal Award (1991). She is a Fellow of the American Meteorological Society and a member of the National Weather Association and the American Geophysical Union. Ms. Glackin has a B.S. degree from the University of Maryland.

Lynn Scarlett was confirmed as Deputy Secretary of the Department of the Interior on November 2005, after 4 years as the Department's Assistant Secretary for Policy, Management and Budget. She served as Acting Secretary of the Department upon the resignation of former Secretary Gale Norton effective April 1, until the confirmation of Secretary Dirk Kempthorne on May 26, of 2006. She serves on the Executive Committee of the President's Management Council. Ms. Scarlett coordinates Interior's environmental policy initiatives to implement the President's executive order on cooperative conservation, serving on the White House Cooperative Conservation Task Force. From June 2003-2004, she chaired the federal Wildland Fire Leadership Council, an interagency and intergovernmental forum for implementing the National Fire Plan and 10-Year Implementation Plan. She co-chairs the President and First Lady's Preserve America initiative on historic preservation and heritage tourism. She also co-chairs the Recreation Fee Leadership Council, a federal interagency group to coordinate recreation fee policy and practices on federal lands. She serves on the Board of Trustees of the Udall Foundation. Prior to joining the Bush Administration in July 2001, she was President of the Los Angeles-based Reason Foundation, a nonprofit current affairs research and communications organization.

Rodger Schlickeisen has been President of Defenders of Wildlife since 1991. Prior to joining Defenders, Rodger was CEO of Craver, Mathews, Smith & Company, a leading consulting firm for progressive advocacy

organizations. He also served in the Carter White House as Associate Director of the U.S. Office of Management & Budget, and as Chief of Staff to U.S. Senator Max Baucus. Rodger is also President of Defenders of Wildlife Action Fund, a political non-profit that works to elect a pro-conservation Congress and White House, and to advance conservation programs and policies. In addition, he is Vice Chairman of the Board of the national League of Conservation Voters. He was the founding chair of the nonprofit Partnership Project, established to help build a more unified and potent national environmental movement. He also serves on the advisory committees of the Earth Communications Organization and the Environmental Media Association. Rodger Schlickeisen holds a bachelor's degree from the University of Washington, an MBA from the Harvard Business School, and a doctorate in finance from George Washington University. He is the author of numerous published opinion pieces and articles, including an influential law review article on the need for a constitutional amendment to protect the natural environment for future generations.

Tuesday, December 9, from 10:30 am to 12:30 pm

01. **Ocean Biodiversity** *(Polaris B)*

The richness of ocean biodiversity is still an unknown. Each year new species of unicellular and multi-cellular organisms are discovered in the water or in the sediments from the ocean. The goal of this session is to explore what is known about ocean biodiversity using results from the census of marine life and new information on microorganisms, what benefits are derived from ocean biodiversity, the changes that have occurred in the past and will most likely occur in the future, the causes of these changes, and explore innovative ways that should be pursued to protect the marine environment and insure the full range of its ecosystem services.

Organizer:

Nathalie Valette-Silver, NOAA/NOS/National Centers for Coastal Ocean Science

Additional Discussants:

Patricia Miloslavich, Associate Professor, Universidad Simon Bolivar, Venezuela;
David Newman, Chief, Natural Product Branch, National Cancer Institute, National Institutes of Health;
Emmett Duffy, Loretta and Lewis Glucksman Professor of Marine Science, Virginia Institute of Marine Science;
Nancy Knowlton, Sant Chair for Marine Science, Smithsonian Institution and Scripps Institution of Oceanography

02. **Communicating About Biodiversity with Cutting Edge Approaches** *(Hemisphere A)*

This symposium will discuss innovative approaches to engaging the public and key sectors in biodiversity conservation through sophisticated communications and public education strategies. We will examine the social context for communications, challenges, lessons learned, and recommendations for future work. Topics will include:

1. Social change communications approaches and biodiversity.
2. Digging into our culture and the human psyche to better understand the social context for communications when it comes to motivating concern and action for nature.
3. Applications and lessons learned: Case studies from leading museums and zoological institutions that undertook innovative approaches to shape knowledge and behaviors; broader reflections on challenges with communicating about the "B-word" over the last ten years.
4. Recommendations for the challenge ahead.

Organizer:

Jane Elder, Principal, Jane Elder Strategies

Additional Discussants:

Carol Saunders, Department of Environmental Studies, Antioch University
Nora Bynum, Director for the Global Activities of Lessons in Conservation: the Network Conservation Educators and Practitioners and Associate Director for Capacity Development at the Center for Biodiversity and Conservation of the American Museum of Natural History
Jill Allread, Owner, Public Communications Inc.

03. **How Health Depends on Nature** *(International Gateway)*

We will explore the ties between human health and biodiversity. Eric Chivian, one of the editors of a new book, *Sustaining Life*: *How Human Health Depends on Biodiversity*, will act as panel moderator and present an overview of the many ways in which human health is inextricable linked to biodiversity. Other speakers will provide details on:

- The ways in which complex interactions in ecological communities influence risk of exposure to diseases.
- The contribution of ecosystem services to human health.
- The value of biodiversity to the search for new medicines and therapies.
- The role of the Earth's animals, plants, and microbes in understanding human physiology, disease, and dysfunction and in preventing and treating disease and dysfunction.
- The economic value of ecosystem services.

Organizer:

Mary Gant, National Institute for Environmental Health Sciences, National Institutes of Health

Moderator:
Eric Chivian, MD, Nobel Laureate and Director of the Harvard Center for Health and the Global Environment
Additional Discussants:
Richard Ostfeld, Animal Ecologist, Cary Institute of Ecological Studies
Joshua Rosenfeld, Deputy Director, International Training & Research, Fogarty International Center, National Institutes of Health
Charles Perrings, Professor, Environmental Economics, Arizona State University
David Newman, Branch Chief, Natural Products Branch, National Cancer Institute, National Institutes of Health

04. **Forests for Tomorrow: National Commission on Science and Sustainable Forestry (NCSSF/NCSE)** *(Polaris C)*
NCSSF's mission, purpose, goals and research outcomes will be discussed in the context of biodiversity and sustainable forestry within the continental US. The session will also bring up obstacles facing US forests and frame some potential next steps to move policy forward to confront these challenges. Panel members will provide perspectives from different sectors of the forest community and hope to foster an interesting discussion on biodiversity, sustainable forestry, policy and other forest related issues.
Organizer:
Chris Bernabo, Program Director, National Commission on Science for Sustainable Forestry (NCSSF)
Moderator:
Joyce Berry, VP of Advancement and Strategic Initiatives and NCSSF Chair, Colorado State University
Additional Discussants:
John Gordon, former Dean Yale School of Forestry, First NCSSF Chair
Jim Brown, former Oregon State Forester
Al Sample, President, Pinchot Institute for Conservation
Ann Bartuska, Deputy Chief, USFS Research and Development
Scott Wallinger, former VP, Forest Science Laboratory, Mead WestVaco

05. **Funding for Biodiversity Conservation**
(Horizon A)
The private philanthropic community has provided critical funding for biodiversity science and conservation around the world. The interests of the funders, generally developed in partnership with the scientific and conservation communities, have helped to shape the priorities of the field.
There is an increased need for biodiversity funding in the face of rapid climate change and other global forces. Leading members of the philanthropic community committed to conserving biodiversity will discuss the priorities of their foundations, the programs they're supporting, address future needs and opportunities in the field, and discuss the potential impact of the economic downturn on those opportunities.
Organizer:
Peter Saundry, Executive Director, National Council for Science and the Environment (NCSE)
Moderator:
Michael Fischer, Executive Director, Consultative Group on Biological Diversity
Additional Discussants:
Adrian Forsyth, Vice President for Programs, Blue Moon Fund
Christopher Holtz, Asia Program Officer in Conservation and Sustainable Development, The John D. and Catherine T. MacArthur Foundation
Jeff Lerner, Program Officer for Habitat, Doris Duke Charitable Foundation
Luis Solorzano, Lead for Andes-Amazon Initiative, Gordon and Betty Moore Foundation
Kenneth Wilson, Executive Director, The Christensen Fund

06. **Can Climate Policies Help Save the Biodiversity of Tropical Forests?**
(Meridian D&E)
With 15-20% of greenhouse gas emissions coming from tropical deforestation, the prospect of combating global warming by reducing emissions from deforestation and forest degradation (REDD) in developing countries has become a major focus of international and US climate policy debates. This potential differs from past approaches to reducing tropical deforestation, many of which have had limited success, in implementing "pay for

performance" under which crediting is done after deforestation rates are verifiably lowered and emissions reductions at the national level are measured through remote sensing. Well-known experts will describe the state of the technical, economic, institutional, and policy challenges and opportunities to put REDD into practice in a way that insures benefits for both biodiversity and climate.

Organizer:

Peter Frumhoff, Director of Science & Policy, Union of Concerned Scientists

Additional Discussants:

Sandra Brown, Senior Scientist, Ecosystems Service Unit, Winrock International

Tom Lovejoy, President, The Heinz Center for Science, Economics and the Environment

Geoffrey Heal, Paul Garrett Professor of Public Policy and Corporate Responsibility at the Graduate School of Business at Columbia University

07. **Political, Economic, and Ethical Contexts of Biodiversity Conservation** *(Hemisphere B)*

The primary goal is to provide a broadened understanding of the contexts which frame biodiversity conservation. Success in conservation is no longer just a matter of passing a few laws, tightening a few regulations, or even building an army of volunteers. We must admit that there exists a politics of conservation and explore its consequences. We must also analyze the current economic order and the underlying worldview of Western culture. The symposium will initiate these discussions and envision the transformations that may be necessary to arrest the decline and destruction of the Earth's natural diversity.

Organizer:

Paul G. Heltne, Director, Center for Humans and Nature

Moderator:

Bruce Coull, Director, Center for Human and Nature, Dean Emeritus, School of the Environment, University of South Carolina

Additional Discussants:

George Rabb, President Emeritus, Chicago Zoological Society

Peter G. Brown, Professor, McGill University.

08. **Human-Dominated Landscapes** *(Oceanic A&B)*

Evidence of a human footprint now exceeds eighty percent of the land area on Earth, excluding Antarctica. Within these regions, human activities are not static and land-use is changing rapidly worldwide. Highly productive lands important for biodiversity are where development is concentrated, making it essential to improve our understanding and management of human dominated landscapes. Land-use change has multiple drivers and complex outcomes which will be illustrated across the managed ecosystem gradient by leaders in conservation science, urban and agro-ecology, and spatial econometrics. There is no simple technical fix; rather we need a host of policy, education and incentive approaches grounded in good science to create refugia, enhance connectivity, and even more importantly, guide human activities and development in an approach that minimizes negative consequences.

Organizer:

Adina Merenlender, Cooperative Extension Specialist, University of California

Additional Discussants:

Marina Alberti, Professor, University of Washington

Devra Jarvis, Senior Scientist, Biodiversity International

Alex Beehler, Assistant Deputy Under Secretary of Defense for Environment, Safety, and Occupational Health

David Theobald, Colorado State University

Nancy Bockstael, Professor Emeritus, University of Maryland

09. **Freshwater Ecosystems** *(Continental B)*

Freshwater habitats, which contain an inordinate concentration of the earth's biodiversity, are undergoing rapid modification due to climate change, species invasions, habitat modification, and over-harvesting. They therefore suffer the highest losses of species of any biome. In order to avert extinction events, it is necessary to forecast them while it is still feasible to intervene. This session will integrate trends in the conservation status of key freshwater taxa, projected changes in drainage fragmentation and water availability, and likely consequences of these changes for freshwater biodiversity. Watersheds that have experienced drainage desiccation provide

models for predicting biodiversity change under various projections of climatic and human-induced water stress and drainage fragmentation. The panel and audience will discuss actions and policy that are needed to avert freshwater extinctions.

Organizer:

Michael Leonard Smith, Center for Applied Biodiversity Science, Conservation International

Additional Discussants:

Neil Cumberlidge, Professor, Northern Michigan University

Larry Gorenflo, Associate Professor, Pennsylvania State University

Cathy Reidy Liermann, Post-Doctoral Fellow, University of Washington

C. Thomas Philbrick, Professor of Biology, Western Connecticut State University

10. **Agriculture from Genes to Landscapes** *(Continental C)*

The interdependent relationship between the environmental and agricultural communities in their efforts to conserve and use biodiversity effectively is one that is often overlooked.

It is essential that these communities find common ground. According to the Millennium Ecosystem Assessment "Over the past 50 years, humans have changed ecosystems more rapidly and extensively than in any comparable period in human history, largely to meet fast-growing demands for food, fresh water, timber, fiber, and fuel." Cultivated systems now cover one quarter of Earth's terrestrial surface. This symposium is dedicated to finding ways for environmentalists and agriculturalists to appreciate both the significant contributions each is making to global biodiversity conservation, the commonalities they share in these efforts, and to highlight programs and projects that provide a more complete approach to biodiversity.

Moderator:

Robert Goodman, Professor and Executive Dean, School of Environmental and Biological Sciences and Executive Director, New Jersey Ag Experiment Station, Rutgers University

Additional Discussants:

Louise E. Jackson, John B. Orr Endowed Chair in the Environmental Plant Sciences, Dept. of Land, Air and Water Resources, University of California, Davis

Sara Scherr, President and CEO, Ecoagriculture Partners

Andy Lipsky, Rhode Island State Biologist, USDA Natural Resources Conservation Service

Henry Shands, President, Council on Agricultural Science and Technology

11. **Bio-prospecting, Bio-mimicry, and Bio-products** *(Polaris A)*

Nature's bounty provides almost endless resources and wealth for humanity. How can biodiversity be used as a basis for sustainable western societies? Use of natural products and processes designed from nature raise a number of technical issues of product development and commercialization and legal and policy issues such as compensation of nations and indigenous people for their "biological patrimony". There are also real conservation issues to ensure that natural sources are not over-exploited. These are issues with respect to the Convention on Biological Diversity. What are the opportunities and challenges from biological, anthropological, economic, legal and policy perspectives on how to move towards more sustainable products and processes based on nature and how to integrate biodiversity conservation with commercialization?

Organizer:

Andy Jorgensen, National Council for Science and the Environment

Moderator:

Anthony Michaels, Managing Partner, Proteus Environmental Technologies, member, NCSE Board of Directors

Additional Discussants:

Steven King , Vice President, Ethnobotanical Research, Sustainable Supply and IP Napo Pharmaceuticals

Lyle Glowka, Senior Legal Advisor, Secretariat of the Convention on Biological Diversity, United Nations Environment Programme

Bob Peoples, Director, ACS Green Chemistry Institute®, American Chemical Society

Robert Friedman, Deputy Director for California, J. Craig Venter Institute

Thomas Hammond, Biodiversity Program Manager, Commission on Environmental Cooperation

12. **Exploring Earth's Species, Writing the Encyclopedia of Life** *(Horizon B)*

The first step in understanding biodiversity is to know what species exist and where. The Encyclopedia of Life project is implementing a bold vision to create a Web page for every species. In order to populate the

EoL with comprehensive and reliable information, descriptive taxonomy and collections must have appropriate expertise and infrastructure to rapidly discover of new species and corroborate known ones. This symposium --- a joint effort of the International Institute for Species Exploration, Arizona State University and the Encyclopedia of Life, Smithsonian Institution --- brings together leaders from the Encyclopedia of Life, major museums and gardens, Heritage Biodiversity Library project, and descriptive taxonomy to discuss how the scientific community will "write" the Encyclopedia of Life.
Please visit www.eol.org for more information.

Organizer:

Quentin Wheeler, Vice President, Dean of the College of Liberal Arts and Sciences, and Director of the International Institute for Species Exploration, Arizona State University will speak on "The future of descriptive taxonomy."

James Edwards, Executive Director, Encyclopedia of Life, Smithsonian Institution will speak on "The Encyclopedia of Life: A Web Page for Every Species"

Additional Discussants:

Dennis Stevenson, Vice President, New York Botanical Garden, Bronx will speak on "The growth and development of natural history collections to document earth's species".

Norman Platnick, American Museum of Natural History, New York will speak on "Comprehensive species inventories for diverse taxa".

Tom Garnett, Executive Director, Biodiversity Heritage Library, Smithsonian Institution will speak on "The Biodiversity Heritage Library: Making the Published Record of Biodiversity Open to All"

Marie Studer, Education and Outreach Group, Encyclopedia of Life, Harvard University, will speak on "The Role of the Encyclopedia of Life in Building Collaborative On-Line Learning Communities"

Detailed Agenda

Location information can be found on page 49.

9:00 am **Skill Building Workshops (concurrent)**

01. Introduction to the Wildlife Habitat Benefits Estimation Toolkit *(Defenders of Wildlife 1st Floor Conference Room)*
02. Biodiversity and Health: A New Paradigm Linking Conservation Medicine, Ecosystem Sustainability, and Human Health *(Conservation International, Room 3)*
03. How to Communicate with Congress about Biodiversity *(JW Marriott)*
04. Catalyzing and Involving Rural Communities in Protecting their Natural Resources and Biodiversity *(Conservation International Room 1)*
06. Environmental, Social, and Health Impact Assessments *(World Wildlife Fund Conference Room)*
07. Environmental Change, Conservation, and Conflict: Panel Discussion and Screening of "Scarred Lands and Wounded Lives" *(Woodrow Wilson International Center for Scholars, Ronald Reagan Building, Auditorium)*
08. Supporting Biodiversity through Green Building and Sustainable Urban Design *(Environmental Protection Agency Room 1153)*
09. Building Conservation and Ecological Leadership at Minority Serving Institutions (MSIs) *(Ecological Society of America, Suite 700)*
10. Biodiversity in the Nation's Forests: What the U.S. Draft "2010 National Report on Sustainable Forests" Reveals *(Meridian Institute, Suite 500)*
11. U.S. Role in Management of Global Biodiversity Change *(Keck Center, National Resource Council, Room 202)*
12. Communicating with the Media About Biodiversity *(The Heinz Center, Conference Room)*
13. LandScope America: Putting Natural Places and Biodiversity on the Map *(National Geographic Society, 9th Floor)*

Afternoon **Meetings with Congressional Representatives**

Participants are Encouraged to Meet with their Congressional Representatives to Discuss the New Biodiversity Agenda

Wednesday, December 10, from 9:00 am to 12:00 pm

01. **Introduction to the Wildlife Habitat Benefits Estimation Toolkit** *(Defenders of Wildlife, 1st Floor Conference Room)*
The Wildlife Habitat Benefits Estimation Toolkit is a set of easy-to-use valuation models, value tables and databases and visitor use estimation models that allows users to generate comprehensive estimates of the annual flows of a wide range of benefits generated by undeveloped areas. The Toolkit is the result of meta-analyses of the valuation literatures on wildlife-associated recreation values, ecosystem services and open space property value premiums, and was developed in collaboration between economists at Defenders of Wildlife and Colorado State University. The workshop will provide participants with an introduction to and overview of the toolkit and associated user manuals, discuss the most relevant uses of the toolkit in land use and habitat conservation planning, and present several sample applications.
Organizer:
Timm Kroeger, Natural Resources Economist, Defenders of Wildlife
Additional Discussants:
Frank Casey, Director, Conservation Economics Program, Defenders of Wildlife
John Loomis, Professor, Dept. of Agricultural and Resource Economics, Colorado State University

02. **Biodiversity and Health: A New Paradigm Linking Conservation Medicine, Ecosystem Sustainability, and Human Health** *(Conservation International, Room 3)*
Participants will understand the importance of biodiversity for human, ecological health, and the sustainability of the planet and practical approaches to conservation of biodiversity through the new, transdisciplinary, collaborative field of conservation medicine. Conservation Medicine is a new discipline focused on links between animal, human, and ecosystem health. It is a solution-oriented practice designed to achieve ecological health for humans and for the environment. The need for this new approach evolved from the recognition of a crisis: unprecedented levels of disease emergence, driven by an increasing burden of human-induced environmental changes such as climate change, land use changes leading to a loss of biodiversity and a disruption of ecosystems, the global distribution of toxic substances, and stratospheric ozone depletion.
Organizer:
Alonso Aguirre, DVM, Senior vice President, Conservation Medicine, Wildlife Trust
Additional Discussants:
Aaron Bernstein, MD, Center for Health and the Global Environment, Harvard Medical School
Connor Kretch, Director, CoHab Initiative, Galway, Ireland
Peter Daszak, Executive Director, Consortium for Conservation Medicine, Wildlife Trust

03. **How to Communicate with Congress about Biodiversity** *(JW Marriott)*
In preparation for the NCSE Science and Environment Congressional Visit Day, we will begin the day with training on how to translate critical scientific and environmental issues into language that's relevant to policy makers. You'll learn communication techniques and make important connections that will enable you to continue to play a role in policy development in the future. Talking points and background materials on climate adaptation and biodiversity conservation, training and mentoring will be provided. Following the training we'll break into small teams for pre-arranged visits to key congressional offices where we will promote the importance of conservation and science-based policy.
Organizers:
Jason Patlis, World Wildlife Fund (WWF)
Jessica McGlyn, World Wildlife Fund (WWF)
Will Gartshore, World Wildlife Fund (WWF)
Catherine Kozak, World Wildlife Fund (WWF)
Sara Chieffo, Defenders of Wildlife
Marcia Lesky, Defenders of Wildlife
Patricia Elias, Union of Concerned Scientists (UCS)
John Fitzgerald, Society for Conservation Biology (SCB)

04. **Catalyzing and Involving Rural Communities in Protecting their Natural**

Resources and Biodiversity *(Conservation International, Room 1)*
The workshop will give participants a "taste" of how to catalyze successful community conservation projects and how to motivate rural communities to participate as full partners in the conservation process. It provides the rudiments for how to initiate, carry out, monitor, and terminate one's role in a successful community conservation project. Examples from Belize, the United States, and India point out how small projects working at the community level can affect regional change from the bottom up. While some ideas that have worked are simple, others are often paradoxical and seemingly counterintuitive. While of interest to activist conservationists, it is important for a larger audience looking for conservation solutions to know what concepts, philosophies, ideas and practices have led to practical field conservation successes.
Organizer:
Robert H. Horwich, Director, Community Conservation
Jonathan Lyon, Merrimack College

06. **Environmental, Social, and Health Impact Assessments** (*World Wildlife Fund, Conference Room)*
Impact assessments provide information about pre-existing ecological circumstances and identify risks for development projects. This workshop will assist participants in identifying and planning for the key components of environmental and social impact assessments with emphasis on understanding and sustaining biodiversity. Using illustrative case studies, the multidisciplinary faculty will illustrate the challenges and importance of integrating the knowledge of several key disciplines and adaptive planning concepts in preparing and performing environmental and socio-cultural impact assessments, as well as utilizing the results for biodiversity conservation, mitigation, restoration and long-term monitoring. Like any scientific "experiment" the actual ecological and biological events and impacts of development must be observed and recorded during the life cycle of development. Impact assessment may be an inappropriate label for what should be carefully carried out natural history and environmental science.
Organizers:
Richard V. Lee, M.D., Medical Director, Ecology and Environment Inc.
Sally A. Lahm, Chief Environmental Scientist, Ecology and Environment Inc. Assistant Professor, State University of New York at Buffalo
Additional Discussants:
Assheton L.S. Carter, Vice President for Corporate Community Engagement Pact
Marta Miranda, Senior Program Officer for Extractive Industries, Macroeconomics for Sustainable Development Program, World Wildlife Fund- US
Peter Neame, Principal Environmental Specialist and Program Manager, International Finance Corporation
Mark Thurber, General and Technical Manager, Walsh Environmental Scientists and Engineers LLC, Quito, Ecuador

07. **Environmental Change, Conservation, and Conflict: Panel Discussion and Screening of "Scarred Lands and Wounded Lives"** *(Ronald Reagan Building, Woodrow Wilson Center Auditorium)*
In conflict regions where the environment exacerbates discord, efficient management of environmental issues could be a productive route to manufacturing cooperation among warring fractions. Traditional security and foreign assistance strategies for nations in conflict have focused primarily on training for military forces, constructing large infrastructure projects, and building democracy. The importance of addressing issues related to environmental degradation and scientific capacity has, for the large part, been ignored. Yet, these factors may be key to achieving political, ecological, and economic security in conflict-ridden nations. The Film *Scarred Lands* use eyewitness accounts to illustrate how war can further compromise the environmental health of distressed regions. This session examines how natural security (the protection and preservation of ecosystems) can be an essential component to national security.
Organizer:
Mandë Holford, Assistant Professor, The City University of New York- York College and CUNY Graduate Center
Additional Discussants:
Alice Day, Fund for Sustainable Tomorrows
Lincoln Day, Fund for Sustainable Tomorrows
Alexander O. Dehgan, US State Department
Geoffrey D. Dabelko, Woodrow Wilson International Center for Scholars
Ethel Tobach, American Museum of Natural History
Stephen Humphreys, International Council on Human Rights

08. **Supporting Biodiversity Through Green Building and Sustainable Urban Design** *(Environmental Protection Agency, Room 1153)*

A panel presentation and discussion by experts and session participants will explore how urban design and infrastructure can contribute to biodiversity. The workshop will focus on the potential environmental contributions of urban centers, drawing on best practices from diverse subject areas, including smart growth, urban ecology, green infrastructure, green building, biodiversity and landscape architecture. The outcome of these discussions will be the emergence of a research strategy to guide the efforts of EPA and other federal agencies, as well as organizations and institutions, as they develop the studies and materials necessary to support a new approach toward urban planning and design, including conservation planning/biodiversity as a design element.

Organizer:

Dale Manty, US EPA, Office of Research & Development

Additional Discussants:

Doug Tallamy, University of Delaware
Kris Hoellen, Conservation Foundation
Sigi Koko, Principal, Down to Earth Design, Inc.
Montira Pongsiri, US EPA, Office of Science Advisor
Robert Snieckus, USDA, Natural Resources Conservation Service

09. **Building Conservation and Ecological Leadership at Minority Serving Institutions (MSIs)** *(Ecological Society of America, Suite 700)*

Minority serving institutions (MSIs) have a unique role to play in leadership development for biodiversity conservation and ecology, due to the significant number of degrees that MSIs confer each year, their culturally-based education efforts, responsiveness to community needs, and their ability to empower communities. Developing leadership in biodiversity conservation and ecology, however, is a new endeavor for many institutions and communities. In this workshop, participants will share previously successful strategies and collaborate in constructing a framework or roadmap of best practices, which the MSI community as a whole, and eventually individual MSI campuses, can use to move forward in developing leadership in biodiversity conservation and ecology.

Organizer:

Nora Bynum, Project Director, Network of Conservation Educators and Practitioners, Center for Biodiversity and Conservation, American Museum of Natural History
Michael J. Foster, Biodiversity Specialist, Enhancing Diversity in Conservation Science, Center for Biodiversity and Conservation, American Museum of Natural History

Additional Discussants:

Jim Manolis, Science Policy Consultant, Minnesota Department of Natural Resources
Teresa Mourad, Director of Education and Diversity Programs, Ecological Society of America
Jennifer Sevin, Education and Training Coordinator, Center for Conservation Education and Sustainability, Smithsonian Institution
Jeurel Singleton, Associate Professor, Department of Biology, School of Natural Sciences, University of Maryland Eastern Shore

10. **Biodiversity in the Nation's Forests: What the U.S. Draft "2010 National Report on Sustainable Forests" Reveals** *(Meridian Institute, Suite 500)*

In December 2008, the USDA Forest Service will release the DRAFT "2010 National Report on Sustainable Forests." The report is based on the Montreal Process Criteria and Indicators (www.mpci.org) as a framework for monitoring, assessing and reporting on current conditions and recent trends for all forests of the United States. The development of the report has been guided in part by the Roundtable on Sustainable Forests (RSF), an open and inclusive network of individuals, organizations and agencies committed to the goal of sustainable forest management. The workshop will center on a discussion of the adequacy of the biological diversity indicators, implications of regional differences and trends, and the use of the MPCI as a framework for guiding forest management activities aimed at preserving biological diversity.

Organizer:

Eric Norland, National Program Leader, Forest Resource Management, USDA Cooperative State Research, Education, and Extension Service & Roundtable on Sustainable Forests

Additional Discussants:

Tom Bancroft, Chief Scientist, National Audubon Society
Donald Outen, National Resource Manager, Baltimore County Department of Environmental Protection and Resource Management

11. **U.S. Role in Management of Global Biodiversity Change** *(NRC Keck Center Room 202)*

Effective policies to deal with climate change, energy, trade, and food and agriculture all have ramifications for biodiversity and ecosystem services, both nationally and globally – ramifications frequently neglected in the formulation of policy. Moreover, Federal responsibility for these issues crosses agency jurisdictions. This workshop will examine some of the most urgent US policy priorities, define biodiversity and ecosystem aspects of the issues, and consider approaches for handling them. Outputs from the workshop will help frame the focus of the NAS Symposium and accompanying report on "Twenty-first Century Ecosystems: Systemic Risk and the Public Good," to be held in Washington on February 11-12, bringing together experts from around the world to examine the science and policy for managing the living world two centuries after Darwin.

Organizers:

Sir Peter Crane, John and Marion Sullivan University Professor, University of Chicago, and Chair, US National Committee for DIVERSITAS

Margaret Goud Collins, Program Officer, US National Committee for DIVERSITAS, National Academy of Sciences

Additional Discussants:

Ann Kinzig, Associate Professor of Biology, Arizona State University

Charles Perrings, Professor of Environmental Economics, Arizona State University

Dan Ashe, Assistant Director for Refuges and Wildlife, USFWS

Will Turner, Conservation International

12. **Communicating with the Media About Biodiversity** *(The Heinz Center, Conference Room)*

Shrinking newsroom resources, time demands, and 24-hour news cycles are consuming journalists and making it more difficult to garner media attention to issues related to the environment and biodiversity. This workshop is designed to help participants learn how to use emerging technologies in communication—from wikis to LinkedIn -- to more effectively reach audiences, including journalists. The session will include tips and tactics for using traditional media as well as social media tools. It will also address questions including: How can I get a reporter to take an interest in my story? How can I get reporters to seek me out for information about environmental issues? Participants will gain insights and skills they can begin using immediately to successfully connect with media.

Organizer:

Jill Allread, Owner, Public Communications Inc.

13. **Landscope America: Putting Natural Places and Biodiversity on the Map** *(National Geographic Society, Control Center 9th Floor)*

LandScope America, a collaborative project of NatureServe and the National Geographic Society, is a new online resource for the land-protection community and the public, aimed at increasing the pace and effectiveness of land and water conservation in the United States. Scheduled for beta release in December 2008, LandScope America (www.landscope.org) will bring together maps, data, photos and stories about the land and present them in interactive formats. Spatial data are organized into several themes, including conservation priorities, protected areas, threats and impacts, recreation, and plants, animals, and habitats. All place-based content is geo-referenced and accessible via the map viewer. During this session, view a live demo of the new website, and contribute your ideas about how it can effectively present spatial data about biodiversity-related issues.

Organizers:

Rob Riordan, Director of Marketing and Communications, NatureServe

Frank Biasi, Conservation Program Director, National Geographic Maps

Additional Discussants:

Lori Scott, Project Director, NatureServe

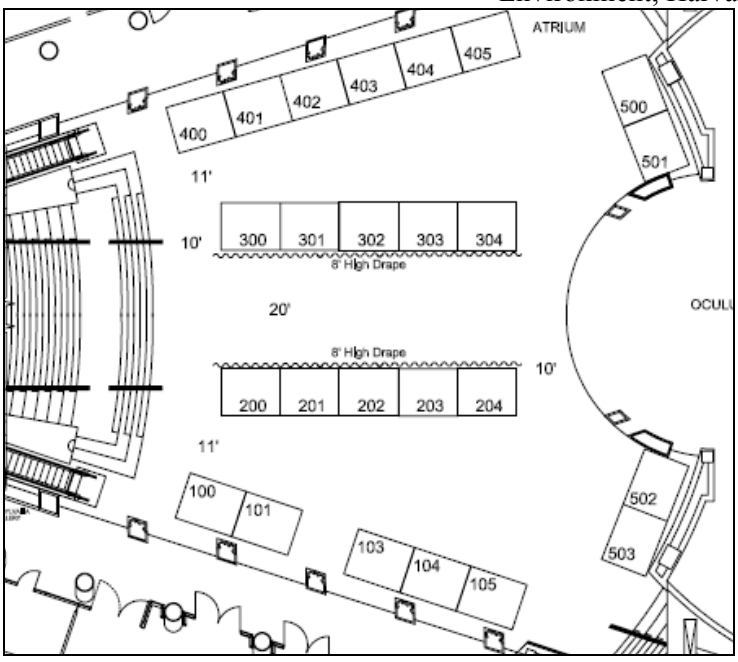
NCSE would like to extend a special thanks to those organizations that provided facilities to our workshop participants.

Showcase of Biodiversity Partners Exhibition

Monday, December 8, from 8:00 am to 8:30 pm

Note: Exhibits will be held in the Atrium

100	National Institute for Environmental Health Sciences/ Environmental Health Perspectives (NIEHS/EHP)
101	American Association for the Advancement of Science
102	Colorado State University
103	Oculus Info Incorporated
104	Conservation International (CI)
105	NatureServe
200	Union of Concerned Scientists (UCS)
201	U.S. Fish and Wildlife Service
202	U.S. Forest Service
203	U.S. Geological Survey (USGS)
204	Environmental Protection Agency (EPA)
300	National Council for Science and the Environment (NCSE)- Earth Portal
302	Department of Defense
303	Centers for Disease Control (CDC)
304	National Aeronautics and Space Administration (NASA)
400	Island Press
401	Florida A&M University
402	National Alliance for Hispanic Health
403	National Ecological Observatory Network (NEON)
404	Michigan State University
405	Cooperative State Research, Education, and Extension Service (CSREES), U.S. Department of Agriculture
500	Earth Justice
501	Strategic Environmental Research and Development Program/ Environmental Security Technology Certification Program (SERDP/ESTCP)
502	Commission for Environmental Cooperation
503	Center for Health and the Global Environment, Harvard University



Poster Session

Note: The main poster session question and answer period will take place on Tuesday, December 9 from 12:00 pm to 1:30 pm and will be up for the duration of the conference Monday and Tuesday in the Atrium Hall.

01. **Mentoring Minority Youth in Biodiversity**: Robert J. Barney, Terrell Washington, and Sarah L. Hall, Kentucky State University

02. **A Transdisciplinary Perspective Concerning the Origin of Species: The Migratory Theory of Genetic Fitness**: DE Montoya and DA Peck, Thompson Rivers University, NL Montoya, University of Manitoba, CP Montoya, Thompson Rivers University

03. **USAID and Partners Enhance Landscape Scale Conservation Approaches**: Diane Russell, Cynthia Gill, Hannah Fairbank, Mary Rowen, Barbara Best, Andrew Tobiason, USAID

04. **The Three Rivers Center at Macalester College: An Andrew W. Mellon Foundation Higher Education and Scholarship Project**: Daniel J. Hornbach and David Lanegran, Macalester College

05. **Avian Biodiversity in Midwestern Biofuel Cropping Systems**: Bruce Robertson and Douglas Schemske, Michigan State University, Patrick Doran, The Nature Conservancy

06. **Broken Screens - The Regulation of Live Animal Imports in the United States**: Peter Jenkins and Heidi Ruffler, Defenders of Wildlife

07. **Amphibians of Honduras: A Critically Endangered Fauna of Regional and Global Biodiversity Significance:** James Austin, Josiah Townsend, and Max Nickerson, University of Florida, Larry Wilson, Escuela Agrícola Panamericana Zamorano

08. **Bridging, Building and Biology: Anthropogenic Impacts on Marine Inter-Tidal Community Composition and Biodiversity:** Pieter A.P. DeHart, Mount Ida College, Deanne Moosman and Paul R. Moosman, Jr., Virginia Military Institute

09. **Operational Satellite Products Available from NOAA/NESDIS/OSDPD:** Donna P. McNamara, NOAA/NESDIS/OSDPD/SSD/PIB

10. **Biodiversity in the Northern Great Plains: Assessing the Impacts and Trade-offs between Multiple Resource Uses:** Michael Hill, Rebecca Romsdahl, Anduin McElroy, Shawn O'Neil, Santosh Rijal, Navin Thapa, Junyu Yang, University of North Dakota

11. **Restoring Native Grasslands Along the Coast of Northern California: Interim Results Suggest Sawdust Will Help:** Peter Alpert, University of Massachusetts – Amherst, and Melissa Lacey, Connecticut College

12. **Temporal Shifts in Diversification Rate from a Molecular Phylogeny of a Cosmopolitan Family of Mycorrhizal Mushrooms (Inocybaceae):** P. Brandon Matheny, U. Tennessee, and David S. Hibbett, Clark U.

13. **A Technique to Identify Potentially Overlapping Jurisdictions in Ocean Management:** Julia A. Ekstrom, Stanford University

14. **Anthropogenic Biomes: Conserving Biodiversity in an Anthropogenic Biosphere:** Erle C. Ellis and Erica Antill, University of Maryland, Baltimore County

15. **Protecting Biodiversity: Lessons Learned in Stakeholder Participation from the Caribbean:** Ainka Granderson and Stanley Temple, University of Wisconsin-Madison

16. **Biodiversity, Key to Sustainability:** Peter E. Black, SUNY College of Environmental Science and Forestry

17. **Invasive Species and Climate Change: Quantifying Risks and Finding Opportunities**: Bethany A. Bradley and David S. Wilcove, Princeton University

18. **Impact of Canadian Tar Sands Oil Development on North America's Birds**: Dylan Atchley, Natural Resources Defense Council, Jeff Wells, Boreal Songbird Initiative, Susan Casey-Lefkowitz and Gabriela Chavarria, Natural Resources Defense Council, Simon Dyer, Pembina Institute

19. **The Role of Wilderness Designations in Protecting Biodiversity in the United States**: Gary Bryner, Brigham Young University

20. **From Classroom to Competition: Using the Oceans as a Tool for Learning**: Kristina Bishop, The College of Exploration, Allison Byrd, Christine Hodgdon, Kathleen Meehan Coop, Consortium for Ocean Leadership, Howard Walters, Ashland University

21. **Community Protected Areas and the Conservation of Jaguar and their Prey in the Chinantla Region of the Sierra Norte, Oaxaca, Mexico**: Joe J. Figel, Florida International University, Elvira Duran-Medina, CIIDIR-Oaxaca IPN, David Barton Bray, Florida International University, J. Rogelio Prisciliano Vazquez Instituto Techologico del Valle de Oaxaca

22. **Enhancing Collaboration Among Students, Practitioners, and Researchers: New Technology, Less Carbon**: Vicky J. Meretsky, Indiana University, Teresea A. N. Woods, U.S. Fish and Wildlife Service, J.C. Randolph, Indiana University

23. **Plant Biodiversity Heritage Collections in Virginia: Ensuring Their Security Through Quantitative Comparison, Community Building, and Education**: Andrea Weeks, George Mason University, Ted R. Bradley Herbarium, George Mason University, Thomas F. Wieboldt and Massey Herbarium, Virginia Polytechnic University

24. **Predicting the Effects of Future Climate Change and Land Use on California Bird Distributions:** John A. Wiens and Diana Strahlberg, Dennis Jongsomhit, and Christine A. Howell, PRBO Conservation Science, Mark A. Snyder, University of California Santa Cruz, Terry L. Root, Stanford University

25. **Science to Inform Action: Riparian Restoration in California's Central Valley**: John A. Wiens, Nathaniel E. Seavy, Thomas Gardali, Christine A. Howell, PRBO Conservation Science, Gregory H. Golet, The Nature Conservancy, Joshua H. Viers, University of California Davis

26. **Interdisciplinary Graduate Training in the Restoration and Conservation of Biodiversity in Integrated Human/Natural Landscapes: Experiences from the LEAP IGERT:** David H. Wise and Mary V. Ashley, University of Illinois at Chicago

27. **Anticipating Threats to Northern Hardwood Biodiversity with an Ecological-Economic Model:** Megan S. Matonis, J.D.A. Millington, M.B. Walters, F. Lupi, K.R. Hall,, S. Chen, J.P. LeBouton, and J. Liu, Michigan State University, E.J. Laurent, North Carolina State University

28. **Biofuels and Wildlife: Habitat Implications of Alternative Feedstock Production Scenarios**: Jason M. Evans, University of Florida, Robert J. Fletcher, University of Florida, Janaki R.R. Alavalapati, Virginia Polytechnic Institute and State University

29. **Integrating Protected Areas Map Databases to Improve Accuracy for Conservation Assessments at Multiple Spatial Scales:** Robert F. Baldwin and Donald J. Lipscomb, Clemson University

30. **New Tools for Studies of Ocean Biodiversity:** Judith L. Connor, Monterey Bay Aquarium Research Institute

31. **Slipping Away: Detection of Declines in Non-fished Marine Species:** Michelle J. Paddack, Simon Fraser University/University of East Anglia, Christy V. Pattengill-Semmens, Reef Environmental Education Foundation (REEF), Brice X. Semmens, National Oceanic and Atmospheric Administration, Seattle, Washington, John D. Reynolds, Simon Fraser University, Andrew R. Watkinson, University of East Anglia, Isabelle M. Côté, Simon Fraser University

32. **Resources for Teaching and Learning in Biodiversity Conservation: The Network of Conservation Educators and Practitioners (NCEP):** Brian Weeks, Ana Luz Porzecanski, Nora Bynum, Eleanor Stearling, Michael Foster, Chanda Bennet, and Franscico Laso, Center for Biodiversity and Conservation, American Museum of Natural History

33. **The African Bushmeat Expedition: Inquiry- Based Conservation Education and The Bushmeat Crisis:** Jay Vavra, High Tech High, Megan K. Morikawa, Duke University

34. **More People Working for More Fish: Strategic Investment in Aquatic Habitat Conservation through the National Fish Habitat Action Plan**: Janet Cushing and T. Douglas Beard, U.S. Geological Survey, Thomas Busiahn, U.S. Fish and Wildlife Service, Christopher Estes, Alaska Department of Fish and Game, Ron Regan, and Ryan Roberts, Association of Fish and Wildlife Agencies, Susan-Marie Stedman, NOAA Fisheries Service, Gary Whelan, Michigan Department of Natural Resources

35. **Effects on Biodiversity of Invasive Species Eurasian Milfoil:** Riona Sutherland, Steve Roesch and Victoria Lau, Fleming College

36. **An Index of Farm Health Reflecting Food Production, Biodiversity, and Ecosystem Services:** Ron J. Johnson and Robert F. Baldwin, Clemson University, John E. and James R. Brandle, University of Nebraska- Lincoln

37. **NASA's Global Change Master Directory: Discover and Access Earth Science Data Sets and Services:** Alicia M. Aleman and Lola M. Olsen, NASA, Vivian B. Hutchinson, USGS

38. **Charting the Course for Local Conservation: How Land Trusts of NC Measure Conservation Success:** George Hess, Nancy Whelchel and Louise Alexander, North Carolina State University

39. **The Bermuda Biodiversity Project: Assessment and Monitoring of Bermuda's Terrestrial and Marine Ecosystems:** Lisa J. Rodrigues, Villanova University, Michael Colella, Florida Fish and Wildlife Research Institute, Heather De Silva, Joseph Furbert, Anne F. Glasspool, Matthew Hammond, Thaddeus Murdoch, and Mark Outerbridge, The Bermuda Zoological Society, Wolfgang Sterrer, Department of Conservation Services, Government of Bermuda, Jack A. D. Ward, Department of Conservation Services, Government of Bermuda

40. **Enhancing Diversity in the Conservation Sciences through Active Teaching, Faculty Communities, and Community Leadership:** Michael J. Foster, Chanda Bennet, Syenda Habib, Eleanor J. Sterling and Nora Bynum, Center for Biodiversity and Conservation, American Museum of Natural History

41. **African Oil Palm Expansion in the Chocó-Darien, Colombia, Biodiversity Hotspot:** Carolina Santos and Joseph P. Messina, Center for Global Change and Earth Observations, Michigan State University

42. **Ground Water-dependent Ecosystems – Biodiversity under Threat**: L.B. Bach and J.F. Brown, The Nature Conservancy, J.T. Gurrieri, USDA Forest Service

43. **An Ecologist Goes Political: the Ecological and Social Complexities of Lemur-livestock Landscapes in Southern Madagascar**: Anne C. Axel, Michigan State University

44. **Occupancy Modeling Methods to Utilize the North American Breeding Bird Survey, Explore Landscape Pattern and Process, and Inform Conservation Planning**: Monica Iglecia and Jaime Collazo, North Carolina State University

45. **Internal Policy Threatens Federal Protection for Marbled Murrelet:** Meredith McCarthy and Francesca Grifo, Union of Concerned Scientists

46. **The Influence of *S. geminata* on Seed Removal Rates in Coffee Agroecosystems:** Katherine Ennis, University of Michigan

47. **Macaw Cam: Participatory Science and Biodiversity Conservation**: Derek Schruhl, Tana Beus, Troy Abel, and Michael Medler, Western Washington University

48. **Addressing "Real-World" Needs in Conservation Training:** Steven Monfort, Francisco Dallmeier, Jennifer Sevin, Smithsonian Institution, Tom Wood and Anne Marchant, George Mason University

49. **Delays in Protections for the North Atlantic Right Whale:** Meredith McCarthy and Francesca T. Grifo, Union of Concerned Scientists

50. **Analysis of Variation Between Stated Recovery Goals and Delisting Decisions During Past Four Administrations:** Karly Kaufman, Meredith McCarthy, and Francesca T. Grifo, Union of Concerned Scientists

51. **A New Interdisciplinary Doctoral Program in Ecosystem Restoration at the University of Buffalo**: David Blersch and Alan Rabideau, State University of New York at Buffalo

52. **Are Dingoes Heroes or Villains in the Bridled Nailtail Wallaby Story? Evaluating the Mesopredator Release Theory in the Context of Endangered Species Management:** Yiwei Wang, University of California Santa Cruz

53. **Analysing the Efficiency of R&D Investments in Renewable Energy Technologies:** Camilla Josephson, Lund University, Sweden

54. **Emerging Frontiers: An Ecosystemic Approach to Development, Culture, Education, Environment and Quality of Life:** André Francisco Pilon, University of São Paulo

55. **Biological Production of Hydrogen by Green Algae *Chlorella vulgaris* Under Different Dark/Light Cycles With the Addition of Glucose:** Naim Rashid Ahmed and Kisay Lee, Myongji University, Korea

56. **Changes in Tree Species Diversity, Species' Spatial Patterns and Regeneration Across a Disturbance Gradient in Dipterocarp Forests:** Indra Prasad Sapkota, Mulualem Tigabu, Per Christer Odén, Swedish University of Agricultural Sciences

57. **Biodiversity of Cyanobacteria and Diatom Collected from Both Water Columns and Core Sediments of Woopo Wetland, Korea:** Duck-Hwan Kim, Seongho Jung, Bong-Jin Lee, Dal-Yong Gong, Inchang Ryu, and Seong-Joo Lee, Kyungpook National University, Korea

58. **Global Warming:** Mohammad Sharrif Moghaddasi, Islamic Azad University, Iran

59. **Ecological Restoration Genetics in Tallgrass Ecosystems:** Geoffrey Morris and Justin Borevitz, University of Chicago

60. **Integrating Natural History Collections with DNA Barcoding of Aquatic Insects: Smithsonian NMNH and the Trichoptera BOL Campaign:** Christy Jo Geraci, National Museum of Natural History, Smithsonian Institution, Xin Zhou, Biodiversity Institute of Ontario, Oliver S. Flint, National Museum of Natural History, Smithsonian Institution

61. **Irreplaceable: Wildlife in a Warming World:** Susan Holmes and Ray Wan, Earthjustice, Suellen Lowry, The Noah Alliance, Cristina Mittermeier, International League of Conservation Photographers

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Disney's Animal Kingdom
Hart Research Institute for Gulf of Mexico Studies
One Degree Less Campaign
Valspar
World Wildlife Fund

Collaborating Organizations

NCSE extends a special thanks to the following Collaborating Organizations for their generous participation and assistance in spreading the word about our conference.

American Institute of Biological Sciences (AIBS)
Aldo Leopold Foundation
Common Ground for Conservation
Conservation International
Convention on Biodiversity
Convention on the Conservation of Migratory Species of Wild Animals (CMS)
Defenders of Wildlife
Environmental Literacy Council
EarthEcho
Gary Braasch Photography
The John H. Heinz III Center on Science, Economics, and the Environment
National Center for Conservation Science and Policy
National Science Collections Alliance (NCS Alliance)
Nature Serve
OBIS
PRBO Conservation Science
Society for Conservation Biology
Wildlife Trust

NCSE would also like to thank our volunteers, session organizers and chairs, note-takers, reporters, assistants, and discussants for their generous support. Special thanks to U.S. Department of Defense for their financial support of biodiversity preservation and to Irreplaceable: Wildlife in a Warming World for the images in the atrium. The Irreplaceable campaign is a partnership of Earthjustice, International League of Conservation Photographers, Noah Alliance and Conservation International's Center for Applied Biodiversity Science (CABS).

Planning Committee

Alonso Aquirre, Vice President for Conservation Medicine, Wildlife Trust
Leonard Berry, Director, Center for Environmental Studies, Florida Atlantic University
Lakhdar Boukerrou, Research Professor in the Department of Geosciences and Adjunct Professor in the College of Business at Florida Atlantic University, Vice President of Groupe Trefle, Algeria
Michael Bowers, National Program Leader- Ecology, Cooperative State Research, Education & Extension Service (CSREES), US Department of Agriculture
Glen Contreras, National Program Leader for Fish/Aquatics Research, US Forest Service
Dominick Della Sala, Executive Director, Conservation Science & Policy Programs, National Center for Conservation Science & Policy
Sidney Draggan, Senior Science Policy Advisor
Jane Elder, Principal, Jane Elder Strategies
Gustavo Fonseca, Team Leader, Natural Resources Management, Global Environment Facility
Mary Gant, Program Analyst, National Institute of Environmental Health Sciences, NIH
Margaret Goud Collins, Program Director, DIVERSITAS, National Academies
Sue Haseltine, Associate Director for Biology, US Geological Survey
Elaine Hoagland, Independent Consultant
Tom Lovejoy, President, The H. John Heinz III Center for Science, Economics, and the Environment
James Manolis, Minnesota Department of Natural Resources
Dan M. Martin, former Senior Managing Director, Critical Ecosystems Partnership Fund
Bill Millan, Senior Policy Advisor for International Conservation, The Nature Conservancy
Toral Patel-Weynand, USGS- National Program Office, National Biological Information Infrastructure
Jason Patlis, Vice President and Managing Director, US Government Relations, World Wildlife Fund
Montira Pongsiri, Office of Research and Development, US Environmental Protection Agency
Ron Pulliam, Regents Professor, Odum School of Ecology, University of Georgia
George Rabb, Director Emeritus, Brookfield Zoo
Kathryn Saterson, Assistant Lab Director for Ecosystem Protection and Global Change, National Health and Environmental Effects Research Laboratory, Environmental Protection Agency
Nathalie Valette-Silver, National Center for Coastal and Ocean Science, National Ocean Service, National Oceanic and Atmospheric Administration
John Waugh, Senior Multilateral Relations Officer, IUCN
John Wiens, Chief Conservation Science Officer, PRBO Conservation Science

Advisory Committee

Elizabeth Chadri, MacArthur Foundation
Eileen Crist, Professor, Virginia Tech
John Curnutt, Regional Wildlife Ecologist, US Department of Agriculture- Forest Service
Martha Garcia, US Geological Survey
Josh Ginsberg, Wildlife Conservation Society
Barry Gold, Marine Conservation Initiative Lead, Gordon and Betty Moore Foundation
Francesca Grifo, Director, Scientific Integrity Program, Union Concerned Scientists
Chris Haney, Conservation Scientist, Defenders of Wildlife
William Jordan, III, Director, Institute for Nature and Culture
John Nordgren, Program Officer, The Kendall Foundation
Walter Reid, Director of Conservation Science Program, David and Lucille Packard Foundation
Tom Smith, Acting Director, Institute of the Environmental, University of California- Los Angeles
Jorge Soberon, Senior Scientist, The University of Kansas
Andrew Taber, Executive VP for Programs, Wildlife Trust

Breakout Locations

Ronald Reagan Building Concourse, Ground, and Mezzanine Levels are abbreviated to C, G, and Z respectively. JW Marriott Meeting and Ballroom Levels are abbreviated to M and B respectively.

C- Continental C	01. Transforming the Role of Natural History Collections in Biodiversity Science
C- MD Classroom 120	02. In a Future Distinctly Different from the Past, What Metrics Do We Use for Conservation
M- JW Marriott Cannon	03. Bridging the Divide: Putting Science Back in the Hands of Resource Managers
M- JW Marriott Commerce	04. Millennium Ecosystem Assessment: The Next Steps, A Second Assessment
Z- International Gateway	05. Assisting Wildlife Adaptation to Climate Change: Managing Across the Landscape
C- MD Classroom 121	06. Invasive Species and Biodiversity: Challenges and Recommendations for a Changing World
M- JW Marriott Hart	07. Population and Biodiversity
C- Hemisphere A	08. Biomass, Biofuels, and Biodiversity
C- Oceanic A	10. Government Actions to Preserve Biodiversity in Developing Landscapes: From Frontiers to Metropolis
C- MD Classroom 112	11. Building and Sustaining Conservation Partnerships
C- JW Marriott State	12. Zoos, Aquariums, and Botanical Gardens: How can living institutions do more to achieve biodiversity conservation?
C- MD Classroom 114	13. The Climate is Changing: What will happen and what can a natural resource manager do?
M- JW Marriott Rayburn	14. Ecosystem Restoration: What does ecosystem restoration mean in a rapidly changing world?
G- Horizon A	15. Scaling Biodiversity: Setting Local Conservation Goals in an Era of Rapid Global Change
M- JW Marriott Congressional	16. Endangered Species and Other Conservation Reliant Species
M- JW Marriott Russell	17. Mapping Conservation Landscapes Across Continents: The future of protected areas in a changing world
C- Oceanic B	18. Agricultural Landscapes and Natural Diversity
G- Horizon B	21. Integrating Cultural Diversity and Biological Diversity
M- JW Marriott Treasury	22. Future of Biodiversity in Africa
C- Atrium Hall	23. Conserving Biodiversity in a Rapidly Changing Arctic
C- MD Classroom C1	24. Water for Biodiversity and Human Needs
C- Polaris A	25. Coral Reefs: Ensuring their Future Biodiversity and Survival
C- Meridian D	26. Applying Marine Biodiversity Toward Better Ecosystem Management into the Next Decade
C- Hemisphere B	27. The Global Loss of Amphibians
C- Meridian E	28. Microbial Diversity
M- JW Marriott Senate	29. Biodiversity Conservation: Employing Markets and Payments for Ecosystem Services
C- Polaris B	30. Conservation Law and Policy Priorities for a New Administration and a New Congress
C- Polaris C	31. Putting Biodiversity Back on the U.S. Political Agenda
B-JW Marriott Salon J&K	32. Ramping Up the Public Connection: Strategies and Tactics for Mobilizing Public Will for Biodiversity Conservation
C- MD Classroom 115	33. Biodiversity in Education: Training the Next Generation of Scientists and Achieving Literacy for Decision-makers and the Public
C- Continental B	34. Building and Adaptive Ark: Conservation Leadership in a Rapidly Changing World

Symposia Locations

Ronald Reagan Building Concourse, Ground, and Mezzanine Levels are abbreviated to C, G, and Z respectively.

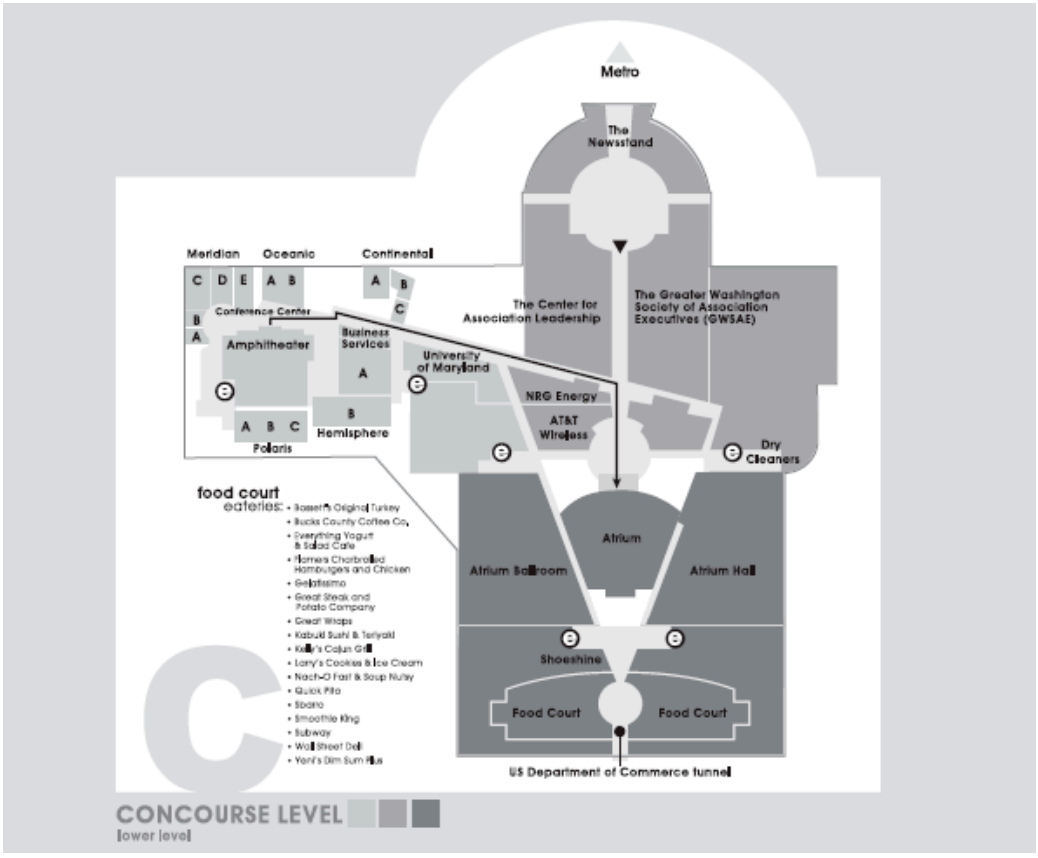
C- Polaris B	01. Ocean Biodiversity
C- Hemisphere A	02. Communicating About Biodiversity
M- International Gateway	03. How Health Depends on Nature
C- Polaris C	04. Forests for Tomorrow: National Commission on Science for Sustainable Forestry (NCSSF/NCSE)
G- Horizon A	05. Funding for Biodiversity Conservation
C- Meridian D&E	06. Can Climate Policies Help Save the Biodiversity of Tropical Forests?
C- Hemisphere B	07. Political, Economic, and Ethical Contexts of Biodiversity Conservation
C- Oceanic A&B	08. Human Dominated Landscapes
C- Continental B	09. Freshwater Ecosystems
C- Continental C	10. Agriculture: from Genes to Landscapes
C- Polaris A	11. Bio-prospecting, Bio-mimicry, and Bio-products
G- Horizon B	12. Exploring Earth's Species, Writing the Encyclopedia of Life

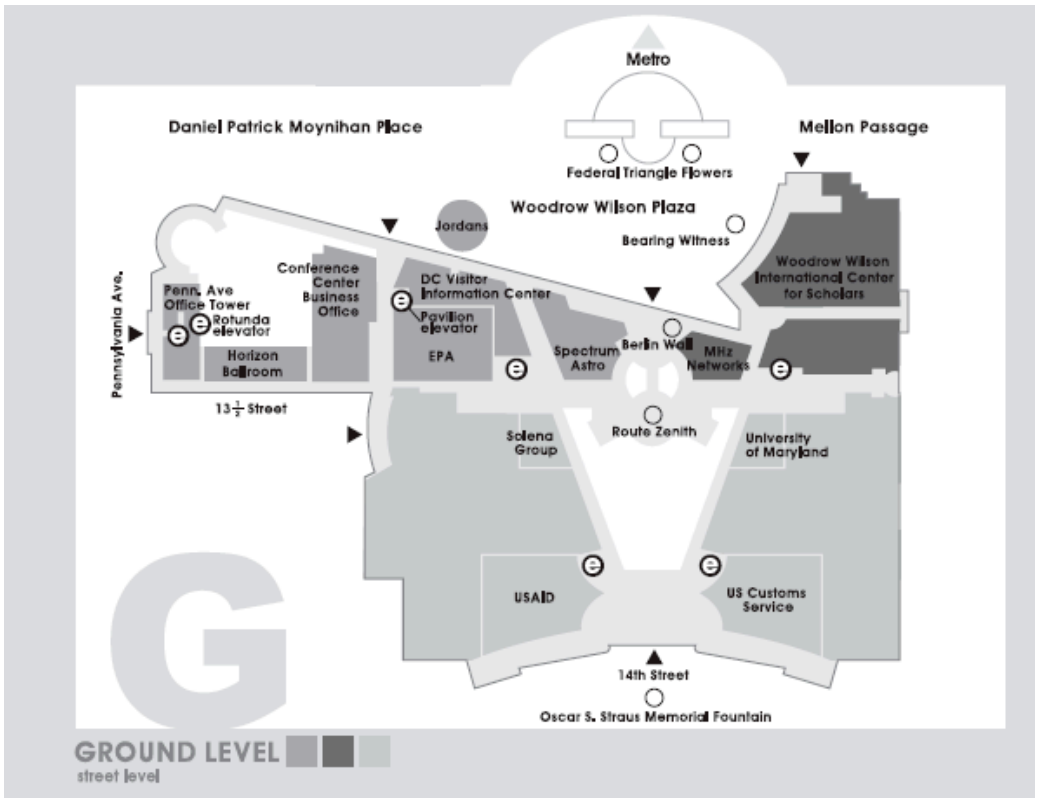
Workshop Locations

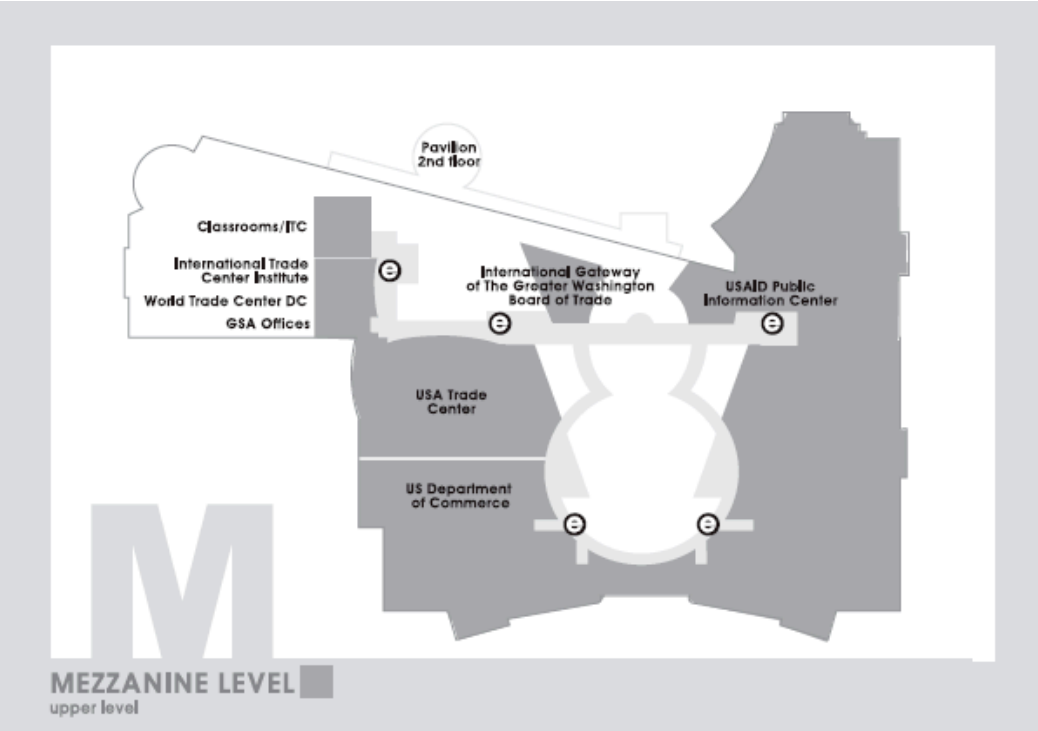
Note: Detailed directions to all workshop locations from the Ronald Reagan Building can be found in your conference bag and at the registration desks. Workshop 5 has been cancelled.

Defenders of Wildlife, 1st Floor Conference Room 1120 17th St. NW Washington, DC 20036 (202)628-9400	01. Introduction to the Wildlife Habitat Estimations Toolkit
Conservation International, Room 3 2011 Crystal Drive, Suite 500 Arlington, VA 22202 (703)341- 2400	02. Biodiversity and Health: A New Paradigm Linking Conservation Medicine, Ecosystem Sustainability, and Human Health
JW Marriott 1331 Pennsylvania Ave. NW Washington, DC 20004 (202)393-2000	03. How to Communicate with Congress about Biodiversity
Conservation International, Room 1 2011 Crystal Drive, Suite 500 Arlington, VA 22202 (703)341- 2400	04. Catalyzing and Involving Rural Communities in Protection their Natural Resources and Biodiversity
World Wildlife Fund, Conference Room 1250 Twenty-Fourth Street NW Washington, DC 20090 (202)293-4800	06. Environmental, Social, and Health Impact Assessments
Woodrow Wilson International Center for Scholars Ronald Reagan Building, Auditorium 1300 Pennsylvania Ave. NW Washington, DC 20004-3027 (202)691-4000	07. Environmental Change, Conservation, and Conflict: Panel Discussion and Screening of "Scarred Lands and Wounded Lives"
U.S. EPA East Building, Room 1153 1201 Constitution Avenue, N.W. EPA East Washington, DC 20004-2403 (301)807-9477	08. Supporting Biodiversity Through Green Building and Sustainable Urban Design
Ecological Society of America, Conference Room 1990 M Street NW Suite 700 Washington, DC 20036 (202)223-6550	09. Building Conservation and Ecological Leadership at Minority Serving Institutions (MSIs):
Meridian Institute 1920 L Street, SW, Suite 500, Washington, DC 20036 (202)589-0220	10. Biodiversity in the Nation's Forests: What the U.S. Draft "2010 National Report on Sustainable Forests" Reveals
Keck Center, National Research Council, Room 202 500 Fifth St. NW Washington, DC 20001 (202)334-3584	11. U.S. Role in Management of Global Biodiversity Change
The H. John Heinz III Center, Conference Rm 900 17th Street, NW, Suite 700, Washington, D. C. 20006 (202)737-6307	12. Communicating with the Media about Biodiversity
National Geographic Society 1145 17th Street NW, 9th Floor Washington, DC 20036 (202)857-7588	13. LandScope America: Putting Natural Places and Biodiversity on the Map *(Please check in to the National Geographic Reception Desk)*

Ronald Reagan Building Maps







JW Marriot Maps

1331 Pennsylvania Ave NW, Washington, DC 20004

The hotel is on the opposite side of Pennsylvania Avenue, directly across the street from the Ronald Reagan Building. It is next door to the National Theatre.