

Data Cocktails for Biodiversity: Protected Area Management Without the Hangover

*Friday, February 18, 2011: 8:00 AM-9:30 AM
159AB (Washington Convention Center)*

Today, the loss of species is estimated to be up to 10,000 times higher than the natural extinction rate. The cause: human activities. Preserving biodiversity on Earth is a key 21st century challenge -- protected areas are a vital part of the response. Effective protected area management deals with complex links between environmental and anthropogenic factors, calling for information gathered by disciplines ranging from biology to sociology, on scales from molecular to global and over time periods of hours to centuries. Borders between disciplines and regions mean large volumes of data have been collected and maintained independently; models using these data were also operated in isolation. The use of distributed computing technology is revolutionizing the way we deal with information, and international initiatives, such as the Group on Earth Observations, encourage different communities to make their systems and applications interoperable. As interdisciplinary issues are tackled, the risk that data and analytical models are misused increases dramatically. The Digital Observatory for Protected Areas (DOPA) specifically targets the challenges of multi-scale, cross-disciplinary science for biodiversity protection. It overcomes risks from mixing disconnected data and models with undocumented uncertainties. It connects science from the field with current observations from space. This session will explore the use of data on the Earth's 24 million square miles of terrestrial protected areas.

Speakers:

Gary Geller, NASA Ecological Forecasting Program

Parks from Space: The Big Picture and New Indicators Help Manage Protected Areas

Shawn Carter, US Geological Survey

Data Cocktails for Biodiversity: Protected Area Management Without the Hangover

Alan Belward, European Commission, JRC Institute for Environment and Sustainability

Digital Observatory for Protected Areas: Helping Earth's Beleaguered Biodiversity

Human pressure on the natural world is nothing new. But the demands we make through agriculture and fishing, for housing, for energy and water, our ability to pollute vast areas and an insatiable need for resources means this pressure relentlessly increases – the result is a planet losing biological species at unprecedented rates. On purely philosophical grounds our right to prosper at the expense of other species occupying this planet is highly questionable. But even

from a selfish viewpoint preserving the diversity of life on Earth should be a priority because of the “services” natural ecosystems provide: from regulating our climate to providing freshwater, food, fuel, fibre – and income.

Protected areas are a vital part of the response. They help maintain habitats in a pristine state; they allow species to exist and co-exist normally and processes to occur at natural rates over space and time. There are around 130,000 protected areas on the planet – over 12% of the land surface, and 6% of territorial marine areas. But are they in the right place? Are they the right size and shape? Does the governance structure help or hinder the surrounding economy and social wellbeing? And how will all of the above change as human population, infrastructure and climate changes?

Effective protected area management deals with complex links between environmental and anthropogenic factors, calling for information gathered by many scientific disciplines. Hundreds of millions of records documenting the minutiae of habitats and their species’ distribution/condition are collected by thousands of scientists and held on hundreds of servers around the world; the Digital Observatory for Protected Areas (DOPA) is one attempt to connect this vast array of information and its owners.

DOPA is a set of web services designed to encourage multi-scale cross-disciplinary approaches to biodiversity studies. It uses distributed computing technology to combine scientific findings from the field with environmental observations from space and geospatial models. This combination allows us to compare the intrinsic biological value of different protected areas, and to assess both short and long-term threats from actions as diverse as logging and land clearance to resilience to climate change.

DOPA helps bridge the borders between scientific disciplines to quantitatively determine the likelihood of losing/gaining habitats, to prioritise and balance threats/value and build scenarios – actions that strengthen the role of protected areas in assuring Earth’s continued biological diversity.