Syllabus for the CERC Certificate Program course entitled:

Ecosystem Services for Conservation and Poverty Reduction

January 19 - February 16, 2011

Center for Environmental Research and Conservation (CERC)
Columbia University
New York, New York, USA

Taught by:

Carter Ingram, Wildlife Conservation Society
Paige Olmsted, CERC, Columbia University

This course was generously supported by the American people through the United States Agency for International Development (USAID), under the terms of the TransLinks Cooperative Agreement No.EPP-A-00-06-00014-00 to the Wildlife Conservation Society (WCS). TransLinks is a partnership of WCS, The Earth Institute, Enterprise Works/VITA, Forest Trends and the Land Tenure Center. The contents are the responsibility of the authors and do not necessarily reflect the views of USAID or the United States government.

CERC Certificate Program
Ecosystem Services for Conservation and Poverty Reduction

The natural world provides "ecosystem services" such as food, fuels, fiber, and mediation of climate, floods, disease, wastes, and water quality. Many of the world's poorest people live in rural areas and are directly dependent on ecosystem services for their livelihoods and, thus, are highly vulnerable to environmental changes and ecological degradation that influence the stocks and flows of these services. While the conservation of ecosystem services is important for long-term poverty reduction, short-term needs and chronic pressure on natural resources often undermine the ability of rural communities to maintain important ecosystems for the future. This course will address the importance of ecosystem services for rural communities in developing countries and will assess the potential of approaches, such as Payments for Ecosystem Services, to contribute to poverty reduction and conservation by providing financial incentives to maintain ecosystem services. Through lectures, case studies and role plays, the course will explore importance of ecosystem services to rural communities; discuss the opportunities for income generation from ecosystem services; and will critically assess challenges and new opportunities of managing ecosystem services for poverty reduction.

Week 1: Introduction to ecosystem services in the context of conservation and poverty reduction
Suggested readings for the week: Millennium Ecosystem Assessment, (2005). Ecosystems and Human Well-being: Synthesis. Island Press, Washington, DC.; and Guo, Z. W., L. Zhang, et al. (2010). "Increased Dependence of Humans on Ecosystem Services and Biodiversity." Plos One 5(10).

Week 2: Payments for Ecosystem Services
Suggested readings for the week: Wunder, S. (2005). "Payments for environmental services: Some nuts and bolts". CIFOR Occasional Paper, Number 42. Center for International Forestry Research.

Week 3: Navigating tradeoffs in ecosystem services for poverty reduction
Suggested readings for the week: Carpenter, S. R., H. A. Mooney, et al. (2009). "Science for managing ecosystem services: Beyond the Millennium Ecosystem Assessment." Proceedings of the National Academy of Sciences of the United States of America 106(5): 1305-1312.

Week 4: Identifying new ecosystem service conservation opportunities

Week 5: Project Presentations by Students

Reading List

Barbier, E. B., E. W. Koch, et al. (2008). "Coastal ecosystem-based management with nonlinear ecological functions and values." Science 319(5861): 321-323.

Carpenter, S. R., H. A. Mooney, et al. (2009). "Science for managing ecosystem services: Beyond the Millennium Ecosystem Assessment." Proceedings of the National Academy of Sciences of the United States of America 106(5): 1305-1312.

Clements, T., A. John, et al. (2010). "Payments for biodiversity conservation in the context of weak institutions: Comparison of three programs from Cambodia." Ecological Economics 69(6): 1283-1291.

DeClerck, F., Ingram J.C., Rumbaitis del Rio, C. (2006). The role of ecological theory and practice in poverty alleviation and environmental conservation. Frontiers in Ecology and the Environment 4: 533-540

Guo, Z. W., L. Zhang, et al. (2010). "Increased Dependence of Humans on Ecosystem Services and Biodiversity." Plos One 5(10).

Ingram, J.C., Whittaker, R.J., Dawson, T. (2005). Tree structure and diversity in human-impacted littoral forests, Madagascar. Environmental Management 35: 779-798

Millennium Ecosystem Assessment, (2005). Ecosystems and Human Well-being: Synthesis. Island Press, Washington, DC.

Perrings, C., S. Naeem, et al. (2010). "Ecosystem Services for 2020." Science 330(6002): 323-324.

Raudsepp-Hearne, C., G. D. Peterson, et al. (2010). "Untangling the Environmentalist's Paradox: Why Is Human Well-being Increasing as Ecosystem Services Degrade?" Bioscience 60(8): 576-589.

Tallis, H., P. Kareiva, et al. (2008). "An ecosystem services framework to support both practical conservation and economic development." Proceedings of the National Academy of Sciences of the United States of America 105(28): 9457-9464.

TEEB (2010) The Economics of Ecosystems and Biodiversity: Mainstreaming the Economics of Nature: A synthesis of the approach, conclusions and recommendations of TEEB.

Turner, W. R., K. Brandon, et al. (2007). "Global conservation of biodiversity and ecosystem services." Bioscience 57(10): 868-873.

Wunder, S. (2008). "Payments for environmental services and the poor: concepts and preliminary evidence." Environment and Development Economics 13: 279-297.

Wunder, S. (2005). "Payments for environmental services: Some nuts and bolts". CIFOR Occasional Paper, Number 42. Center for International Forestry Research.