

Economics 144
Economics of Conservation

Course Hours: MWF 4:00 – 4:50 PM **Classroom:** Solis, Room 1-07

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Course Dates: Monday, March 29 - Friday, June 4

Final: Monday – Friday, June 7-11

Holidays: Cesar Chavez Holiday, Friday, March 26

Memorial Day, May 31

President's Holliday Monday, February 16

Purpose: Biodiversity and ecosystems and their services face growing threats. Their loss affects human welfare. Humans depend on natural systems to produce a wide variety of ecosystem goods and services, ranging from direct use of certain species for food or medicines to ecosystem functions that provide water purification, nutrient retention, or climate regulation. Sustaining biodiversity in the face of increasing human populations and increased human economic activity promises to be a major challenge. Since most of the threats to biodiversity and ecosystems originate from human actions, understanding human behavior and the social, political and economic systems in which people operate is an essential component for those interested in conserving biodiversity. Biology alone is insufficient to address the growing threats to biodiversity and ecosystems. This course examines conservation policy from an economic perspective, applying economics principles to develop policy. A cost-benefit analysis framework will be employed, and the aim will be to develop an applied approach that can be implemented.

Students interested in related political science issues should consider Political Science 125: The Politics of Conservation in Developing Countries.

Textbooks

Required (Purchase):

Swanson, T.M. and E. Barbier, editors. 1992. *Economics for the Wilds: Wildlife, Diversity, and Development*. Island Press, Washington, D.C. Available from the campus bookstore in the form of a reader.

Additional Key Overview Readings

Bulte, E., G. van Kooten, and T. Swanson. 2003. Economic Incentives and Wildlife Conservation. Working paper.

Polasky, S, C Costello, and A Solow. 2005. The Economics of Biodiversity. Chapter 29 in K-G Mäler and J Vincent, editors, *Handbook of Environmental Economics*, Volume 3. Elsevier.

Squires, D., A. Khan, M. Smith, and N. Vestergaard. 2010. Rethinking Marine Conservation: From Solving the Commons Problem to Conservation and Management of Impure Public Goods. Working paper.

Other readings will be available from the class website in pdf or Word files. Not all sections yet have assigned readings; additional readings will be assigned during the quarter.

General Source of Information

Evaluation: Exams, Grades, and Re-Grades

- One midterm and final exam, each of which is 50% of the final course grade.
- Bluebooks are required.
- Re-grade requests are to be made in writing and must explain the reason why a re-grade is requested, i.e. a logical discussion and thorough explanation of why your answer deserves more credit. Exam answers must be written in pen to be eligible for a re-grade.
- All re-grade requests will be routed through the TA responsible for correcting the question.
- The instructor will NOT over-rule a TA's grading of the question. The instructor will only step in when there is a perceived procedural issue.

1. Introduction

- Powerpoint Lecture: Introduction
- http://en.wikipedia.org/wiki/Wildlife_conservation
- Trombulak, S.C., K. S. Omland, J.A Robinson, J.J. Lusk, T.L. Fleischner, G. Brown and M Domroese. 2004. Principles of conservation biology: recommended guidelines for conservation literacy from the education committee of the Society for Conservation Biology. *Conservation Biology* 18(5): 1180-1190.
- Norton-Griffiths. 2007. How Many Wildebeest Do You Need? *World Economics* 8(2): 41-64.
- Millennium Ecosystem Assessment. 2005. *Ecosystems and Human Well-Being: Biodiversity Synthesis*. Washington, D.C.: World Resources Institute, pages 1-16.
- *Der Spiegel*. What would it cost to save nature? March 23, 2008. <http://www.spiegel.de/international/world/0,1518,554982,00.html>

2. Review of Economic Concepts

2.1. Externalities

- Powerpoint Lecture: Environmental Externalities and Market Failure
- Tisdell, C. 2007. *Economics of Environmental Conservation*. Edward Elgar. Chapter 3.

2.2. Total Economic Value and Markets for Biodiversity

- Powerpoint Lecture: Biodiversity Markets

- Total Economic Value, pp. 129-137 in D. W. Pearce and R.K. Turner, 1990., *Economics of Natural Resources and the Environment*. London: Harvester Wheatsheaf.
- Pagiola, Landell-Mills, and Bishop. 2002. Making market-based mechanisms work for forests and people. Chapter 15 in Pagiola, Bishop, and Landell-Mills, editors, *Selling Forest Environmental Services: Market-Based Mechanisms for Conservation and Development*. Earthscan.
- Barbier, Economics of the wilds, Chapter 2 in Swanson and Barbier, eds.
- Polasky, Costello, and Solow Section 3.
- Example: Naidoo, Malcom, and Tomasek. 2009. Economic benefits of standing forests in highland areas of Borneo: quantification and policy impacts. *Conservation Letters* 2: 34-44.
- Example: Adger, W. N., Brown, K., Cervigni, R., & Moran, D. 1995. Total economic value of forests in Mexico', *Ambio* 24 (5):286-296

2.3. Opportunity Costs of Conservation: Impacts on Local Inhabitants

- Powerpoint Lecture: Opportunity Costs of Conservation
- Norton-Griffiths, M. and C. Southey. 1995. "The opportunity costs of biodiversity conservation in Kenya." *Ecological Economics* 12(2): 125-139.
- Butler, R., L.P. Koh, and J. Ghazoul. 2009. REDD in the red: Palm oil could undermine carbon payment schemes. *Conservation Letters* 2(2): 67-73.
- Borneo rain forests:
<http://www.timesonline.co.uk/tol/news/world/asia/article5908207.ece>

2.4. Costs, Benefits, and Discounting

- Powerpoint Lecture: Costs, Benefits, and Discounting
- Naidoo and Ricketts. 2006. Mapping the economic costs and benefits of conservation. *PLoS Biology* 4(11): 2153-2164.
- Eve McDonald-Madden, Ascelin Gordon, Brendan A. Wintle, Susan Walker, Hedley Grantham, Silvia Carvalho, Madeleine Bottrill, Liana Joseph, Rocio Ponce, Romola Stewart, Hugh P. Possingham "True" Conservation Progress. January 2009 *Science* 323: 43-44.

2.5. Property Rights, Public Goods, Common Resources, Coase Theorem

- Powerpoint Lecture: Property Rights
- Powerpoint Lecture: Impure Public Goods
- Squires, D. 2010. Property and use rights in fisheries. In R. Allen, J. Joseph, and D. Squires, editors, *Conservation and Management of Transnational Fishing Industries*. Blackwell Publishing. **Read only Sections 1-4**

- Aylward, Appropriating the value of wildlife and wildlands, Chapter 3 in Swanson and Barbier.
- Bulte, van Kooten, and Swanson. 2003. Economic Incentives and Wildlife Conservation. **Section 1.1**

2.6. Collective Action, Social Norms, and Economic Incentives

- Powerpoint Lecture: Collective Action Social Norms
- Baland, J.P. and J.-P. Platteau. Conditions for Successful Collective Action: Insights from Field Experiences. Chapter 12 in Halting Degradation of Natural Resources. Food and Agriculture Organization of the United Nations, selected pages.

3. Biodiversity

- Polasky, Costello, and Solow, Sections 2 and 3
- Armstrong, P., B. Kendall, and F. Davis. 2004. An introduction to biodiversity concepts for environmental economists. *Resource and Energy Economics* 26: 115-136.
- Heal, G. 2004. Economics of biodiversity: An introduction. *Resource and Energy Economics* 26: 105-114.

3.1. Biodiversity and Ecosystem Services

- Powerpoint Lecture: Ecosystem Services
- Polasky, Costello, and Solow, Section 3.3.
- Barbier, Economics for the wilds, Chapter 2 in Swanson and Barbier
- Aylward, Appropriating the value of wildlife and wildlands, Chapter 3 in Swanson and Barbier
- Pearce, D., G. Atkinson, and S. Mourato 2006. The value of ecosystem services. Chpt. 12 in D. Pearce, G. Atkinson, and S. Mourato *Cost Benefit Analysis and the Environment: Recent Developments*. Paris: OECD, 2006.

4. Community Conservation

- Powerpoint Lecture: Community Conservation
- Barbier. Community-Based Development in Africa. Chapter 5 in Swanson and Barbier, eds., *Economics for the Wilds: Wildlife, Diversity, and Development*, 1992.
- Bulte, E., G. van Kooten, and T. Swanson. 2003. Economic Incentives and Wildlife Conservation, Section 2.1., pp. 13-15.

5. Economic Approaches for Conservation: Markets, Incentive and Market-Based Policy

- Powerpoint: Direct and Indirect Conservation

- Simpson, R.D. 2004. Conserving biodiversity through markets: A better approach. *PERC Policy Series* Issue Number PS-32: 1-28.
- Polasky, Costello, and Solow, Section 5
- Bulte, E., G. van Kooten, and T. Swanson. 2003. Economic Incentives and Wildlife Conservation. **Sections 2 and 3.**

5.1. Command-and-Control Conservation: Quota Schemes

- Bulte et al. Section 3.1.

5.2. Payments for Environmental Services

- Powerpoint: Conservation Payments
- Powerpoint: Selling Environmental Services to help Finance Reforestation
- Engle, S., S. Pagiola, and S. Wunder. 2008. Designing payments for environmental services in theory and practice: An overview of the issues. *Ecological Economics* 65(4): 663-674.
- Milne, S. and E. Niesten. 2009. Direct payments for biodiversity conservation in developing countries: practical insights for design and implementation. *Oryx* 43: 530-541.

5.2.1. Case Study

- Guest Speaker

5.4. Eco-Tourism

- Powerpoint: Ecotourism
- Barnes, Burgess, and Pearce. Wildlife tourism, Chapter 6 in Swanson and Barbier, editors. 1992. *Economics for the Wilds.*

5.5. International Conventions, Markets, and Trade

- Swanson, The role of wildlife utilization and other policies in biodiversity conservation, Chapter 4 in Swanson and Barbier, editors. 1992. *Economics for the Wilds.*
- Thorbjarnarson, J. 1999. Crocodile tears and skins: international trade, economic constraints, and limits to sustainable use of crocodilians. *Conservation Biology* 13(3): 465-470.
- Wasser, S. Elephants, Ivory and Trade. *Science* 12 March 2010: Vol. 327. No. 5971, pp. 1331 – 1332.

6.1. Game Ranching

- Powerpoint Lecture: Game Ranching Illegal Trade

- Luxmoore, R. and T. Swanson. 1992. Wildlife and wildland utilization and conservation, Chapter 5 in Swanson and Barbier, eds., *Economics for the Wilds: Wildlife, Diversity, and Development*, 1992.
- Erwin Bulte and Richard Damania, "An Economic Assessment of Wildlife Farming and Conservation," *Conservation Biology*, Vol. 19, No. 4, August 2005, pp. 1222-1233.
- Rodney Jackson. 2004. Pakistan's Community-based Trophy Hunting Programs and Their Relationship to Snow Leopard Conservation.

6.2. The Tiger

- Powerpoint Lecture: Tigers
- Background: <http://www.21stcenturytiger.org/index.php?pg=facts>
- Can the Wild Tiger Survive? by Virginia Morrell. *Science* vol. 317 September 2007
- B. Gratwicke, E. Bennett, S. Broad, S. Christie, A. Dutton, G. Gabriel, C. Kirkpatrick, and K. Nowell. 2008. "The World Can't Have Wild Tigers and Eat Them, Too." *Conservation Biology*, 22(1): 222–223.
- M. Linkie and S. Christie. 2007. "The Value of Wild Tiger Conservation." *Oryx*, 41(4): 415–416
- Mitra, B. 2006. Sell the Tiger to Save It." *New York Times*. August 15, 2006.
http://www.nytimes.com/2006/08/15/opinion/15mitra.html?_r=1
- Zabel, A. and K. Holm-Müller. 2008. Conservation Performance Payments for Carnivore Conservation in Sweden. *Conservation Biology* 22(2): 247-251.

6.3. The Vaquita

- Guest Speaker
- Jaramillo-Legorreta, A., L. Rojas-Bracho, R. Brownell Jr., A. Read, R. Reeves, K. Ralls, and B. Taylor. 2007. Saving the Vaquita: Immediate action, not more data. *Conservation Biology* 21(6): 1653–1655.
- D'agrosa, C., C. Lennert-Cody, O. Vidal. 2000. Vaquita Bycatch in Mexico's Artisanal Gillnet Fisheries: Driving a Small Population to Extinction. *Conservation Biology* 14(4): 1110-1119.
- Barlow, J., L. Rojas Bracho, C. Muñoz, S. Mesnick. In press 2009. Conservation of the Vaquita (*Phocoena sinus*) in the northern Gulf of California, Mexico, in R.Q. Grafton, R. Hilborn, D. Squires, M. Tait, and M. Williams, editors, *Handbook of Global Fisheries Management*. Oxford: Oxford University Press.
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6.4. Migratory Species

- Guest speaker on migratory seabirds

6.5. Conservation in San Diego County

- Guest speaker