

PRINCETON UNIVERSITY
WOODROW WILSON SCHOOL
Spring 2006

WWS 586b/EEB516
Conservation of Endangered Species and Ecosystems
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Professor David Wilcove
403 Robertson Hall
258-7118
dwilcove@princeton.edu

Course Description

We will examine the ways in which science has influenced public policy with respect to both endangered species and ecosystems in the United States and other countries, using a case-study approach. Because we will focus on a limited number of case studies, students will have the opportunity to work with the primary decision documents, including environmental impact statements, legal briefs, Congressional testimony, and peer-reviewed scientific publications. Topics include the conservation of the northern spotted owl, the Clinton Administration's Northwest forest plan, different approaches to setting global conservation priorities, reintroduction of the gray wolf to Yellowstone National Park, conservation of endangered species on private lands, and current legislative battles over the Endangered Species Act.

Please be advised that the schedule below is subject to change, depending on the availability of the invited speakers.

Prerequisites

I anticipate that students with a range of backgrounds and experience will be taking the course. Accordingly, I will try to structure parts of the course to play to those different strengths. Students with strong science backgrounds may be asked to summarize or interpret technical papers, while students with strong policy backgrounds may be asked to delve into legal and policy matters in greater depth.

Course Format

We will devote most of each class to a discussion of the reading assignments. Frequently, I will give a short introductory lecture to provide the necessary background for that discussion.

Requirements

Your grade will be based on class participation and presentations (30%), the mid-term paper (30%), and the final paper (40%).

Reading Assignments

I have prepared a course packet, available through Pequod Printing. Readings included in the course packet are indicated by an asterisk (*); readings not included in the packet are available electronically through the Woodrow Wilson School library.

Schedule of Classes

Class 1 (2/7). An overview of the course; discussion of how an endangered species act should be structured.

Reading for Class 2

Endangered Species Act of 1973 (as amended through 1988).*

Class 2 (2/9). How the Endangered Species Act operates.

Reading for Class 3

Myers, N., R.A. Mittermeier, C.G. Mittermeier, G.A.B. da Fonseca, and J. Kent. 2000. Biodiversity hotspots for conservation priorities. *Nature* 403: 853-858.*

Olson, D.M. and E. Dinerstein. 1998. The Global 200: a representation approach to conserving earth's most biologically valuable ecoregions. *Conservation Biology* 12: 502-515.*

Kareiva, P. and M. Marvier. 2003. Conserving biodiversity coldspots. *American Scientist* 91: 344-351.*

Class 3 (2/14). Setting global conservation priorities: Is there a right way to do it?

Reading for Class 4

Kremen, C. et al. 1999. Designing the Masoala National Park in Madagascar based on biological and socioeconomic data. *Conservation Biology* 13: 1055-1068*

Class 4 (2/16). Designing Masoala National Park, Madagascar.

Reading for Class 5

Struhsaker, T. et al. 2005. Conserving Africa's rainforests: problems in protected areas. *Biological Conservation* 123: 45-54.*

Liu, J. et al. 2001. Ecological degradation in protected areas: the case of Wolong Nature Reserve for giant pandas. *Science* 292: 98-101.*

Curran, L.M. et al. 2004. Lowland forest loss in protected areas of Indonesian Borneo. *Science* 303: 1000-1003.*

Class 5 (2/21). How effective are parks?

Reading for Class 6

Schwartzman, S., A. Moreira, and D. Nepstad. 2000. Rethinking tropical forest conservation: perils in parks. *Conservation Biology* 14: 1351-1357.*

Terborgh, J. 2000. The fate of tropical forests: a matter of stewardship. *Conservation Biology* 14: 1358-1361.*

Redford, K.H. and S.E. Sanderson. 2000. Extracting humans from nature. *Conservation Biology* 14: 1362-1364.*

Schwartzman, S., D. Nepstad, and A. Moreira. 2000. Arguing tropical forest conservation: people versus parks. *Conservation Biology* 14: 1370-1374.*

Naughton-Treves, L. et al. 2003. Wildlife survival beyond park boundaries: the impact of slash-and-burn agriculture and hunting on mammals in Tambopata, Peru. *Conservation Biology* 17: 1106-1117.*

Brashares, J.S. et al. 2004. Bushmeat hunting, wildlife declines, and fish supply in West Africa. *Science* 306: 1180-1183.*

Class 6 (2/23). Sustainable use versus strict protection in parks: what works best?

Reading for Class 7

TBA

Class 7 (2/28). A conversation with Carter Roberts, president of the World Wildlife Fund.

Reading for Class 8

United States District Court, District of Wyoming. Wyoming Farm Bureau Federation et al. vs. Bruce Babbitt (district court opinion), pp. 1-12, 36-50.

Brief of Plaintiffs/Appellees, Wyoming Farm Bureau Federation et al. (Farm Bureau's brief to the Court of Appeals by Todd S. Welch et al.).

Brief for Plaintiffs-Appellants, Appellees Predator Project et al. (Predator Project's brief to the Court of Appeals by Douglas L. Honnold).

Brief of Amici Curiae prepared by Michael Bean for Environmental Defense Fund et al.

Class 8 (3/2). Reintroduction of wolves to Yellowstone National Park: was it legal?

Reading for Class 9

American Bird Conservancy et al. 2005. Emergency petition for a rule to list the red knot (*Calidris canutus rufa*) as endangered under the Endangered Species Act.*

Class 9 (3/7). What constitutes an endangered species? The case of the red knot.

The role of modeling in conservation planning. What conservation plan for the spotted owl would you propose? Background lecture: The Bush Administration's spotted-owl dilemma.

Reading for Class 10

Chadde, S.W. and C.E. Kay. 1991. Tall-willow communities on Yellowstone's Northern Range: a test of the "natural-regulation" paradigm. Pp. 231-262 in *The Greater Yellowstone Ecosystem: Redefining America's Wilderness Heritage*, edited by R.B. Keiter and M.S. Boyce. New Haven, CT: Yale University Press.*

Kay, C.E. 1998. Testimony before the U.S. House of Representatives Subcommittee on Forests and Forest Health oversight hearing on the decline of aspen in the western United States, May 14.*

Huff, D.E. and J.D. Varley. 1999. Natural regulation in Yellowstone National Park's northern range. *Ecological Applications* 9: 17-29.*

Ripple, W.J., E.J. Larsen, R.A. Renkin, and D.W. Smith. 2001. Trophic cascades among wolves, elk, and aspen on Yellowstone National Park's northern range. *Biological Conservation* 102: 227-234.* (skim)

Robbins, J. 2005. Hunting habits of Yellowstone wolves. *New York Times*, Oct. 18.*

Class 10 (3/9). Are there too many elk in Yellowstone? If so, what should the Park Service do about it?

Reading for Class 11

TBA

Class 11 (3/14). The federal lands of the United States: history, key legislation.

Reading for Classes 12

None (midterm assignment due).

Class 12 (3/16). Discussion of midterm assignment.

Reading for Class 13

TBA

Class 13 (3/28). A conversation with Wm. Robert Irvin, Senior Vice President, Defenders of Wildlife.

Reading for Class 14

Forsman, E.D., E.C. Meslow, and H.M. Wight. 1984. Distribution and biology of the spotted owl in Oregon. *Wildlife Monographs* 87: 1-84. (read pp. 1-30, 53-57; skim rest)

Lande, R. 1988. Demographic models of the northern spotted owl (*Strix occidentalis caurina*). *Oecologia* (Berlin) 75: 601-607.*

Class 14 (3/30). The role of empirical data and models in conservation planning: the controversial case of the northern spotted owl.

Reading for Class 15

Thomas, J.W., E.D. Forsman, J.B. Lint, E.C. Meslow, B.R. Noon, and J. Verner. 1990. A conservation strategy for the northern spotted owl. Report of the Interagency Scientific Committee to Address the Conservation of the Northern Spotted Owl. Portland, OR: USDA Forest Service, USDI Bureau of Land Management, USDI Fish and Wildlife Service, USDI National Park Service. Pp. 1-45; Appendix B (skim); Appendix O; Appendix P (skim)

Class 15 (4/4). Discussion of the Thomas Plan: does it represent a viable approach to protecting the northern spotted owl?

Reading for Class 16

Grumbine, R.E. 1994. What is ecosystem management? *Conservation Biology* 8: 27-38.*

Fitzsimmons, A.K. 1994. Federal ecosystem management: a "train wreck" in the making. Policy Analysis No. 217 (Oct. 26). Washington, DC: Cato Institute.*

Class 16 (4/6): What is ecosystem management? Is it a viable strategy for conserving biodiversity?

Reading for Class 17

Forest Ecosystem Management: An Ecological, Economic, and Social Assessment. Report of the Forest Ecosystem Management Assessment Team. 1993. USDA Forest Service, USDI Fish and Wildlife Service, USDC National Marine Fisheries Service, USDI National Park Service, USDI Bureau of Land Management, and Environmental Protection Agency.

Everyone should read/skim chapters I and II, but skip the economic and sociological analyses in Chapter II, if you wish. In addition, teams should read relevant chapters for their presentations. *Important note: focus on Option 9, since that is the one that was ultimately chosen by the Clinton Administration.*

Egan, T. 1994. Oregon, foiling forecasters, thrives as it protects owls. *New York Times*, October 11.*

Class 17 (4/11). The Clinton Administration's forest plan: discussion of spotted owls and other species. What percentage of the remaining old-growth forest was protected by the Clinton Administration?

Reading for Class 18

Wilkinson, C.F., and H.M. Anderson. 1987. *Land and Resource Planning in the National Forests*. Island Press, Washington, DC., pp. 290-311.*

Plus additional material to be determined later.

Class 18 (4/13). Recent changes to the regulations protecting biodiversity in the national forests: a step forward or a step back?

Reading for Class 19

Raven Environmental Services. 2002. Habitat Conservation Plan for the red-cockaded woodpecker on the property owned by Woodlands Group LLC in Livingston Parish, Louisiana. Report submitted to the U.S. Fish and Wildlife Service, Lafayette, LA (March).*

U.S. Fish and Wildlife Service. 2002. Environmental Assessment. Issuance of incidental take permit under Section 10(a)(1)(B) of the Endangered Species Act to Woodlands Group L.L.C., Livingston Parish, LA, in association with a Habitat Conservation Plan for the red-cockaded woodpecker (*Picoides borealis*). Atlanta, GA: U.S. Fish and Wildlife Service.*

Class 19 (4/18). Reconciling economic growth with endangered species conservation: do Habitat Conservation Plans work?

Reading for Class 20

TBA

Class 20 (4/20)—class may be rescheduled. The use of economic and regulatory incentives to preserve endangered species.

Reading for Class 21

TBA

Class 21 (4/25). Mitigation banks for endangered species.

Reading for Class 22:

H.R. 3824: A bill to amend and reauthorize the Endangered Species Act of 1973 to provide greater results conserving and recovering listed species, and for other purposes. (The text of the bill is on e-reserve; a Library of Congress summary is included in the course packet).

Class 22 (4/27). Rewriting the Endangered Species Act: an analysis of recent legislation.

Reading for Class 23:

TBA

Class 23 (5/2). A conversation with Robert Bonnie, director of the Center for Conservation Incentives, Environmental Defense.

Class 24 (5/4). Concluding lecture and discussion.