Decision support for forest management

Lecture 1 outline, Course introduction

1. Introductions, 30 min
   1. A little about your professor
   2. A little about yourself
      1. Name
      2. Undergraduate experience (major)
      3. Plans for your Masters degree
      4. Background in statistics, modeling, OR, decision support, GIS, etc.
2. Course overview and expectations, 15 min
3. The context for decision support in forest management (a US perspective on the historical context), 75 min w/ break
   1. Setting the stage (1880-1910)
      1. Settlement of the west
         1. Land conversion - loss of forest/prairies
         2. The railroads and big fires
         3. Displacement of native peoples
      2. John Muir and the preservationists - National Park System
      3. Gifford Pinchot and the conservationists - National Forest System
   2. European forestry imported to US (1900-1940)
      1. Especially German
      2. Schools of forestry - Yale, Harvard, land grant universities (e.g., OSU)
   3. Post WWII and industrialism (1945-1975)
      1. The housing boom and the baby boom
      2. The industrial explosion
         1. Factory production, forestry, and agriculture
         2. National highway system and other infrastructure
      3. Vast expansion of State universities
         1. Land grant universities est’d beginning about 1850s
         2. In particular, environmental (biophysical) research
      4. The rise of the environmental movement – Silent Spring
      5. Environmental legislation (1970-1975)
         1. The Clean Air Act
         2. The Clean Water Act
         3. The Endangered Species Act
         4. The National Environmental Policy Act (and EPA)
         5. National Forest Management Act
4. So what’s the point?
   1. All of the above sets the stage
      1. e.g., the context in which demand for decision support emerged
   2. Key points
      1. Booming population
      2. Booming industrialization on several dimensions
      3. Significant environmental effects
      4. Science was recognizing the problems
      5. Governments at multiple levels respond with a complex patchwork of environmental laws and regulations
   3. End result – environmental management was becoming incredibly complex
      1. Many different agencies
         1. Land management
         2. Regulatory
         3. Each with their own mandates (laws and regulations)
      2. Many different environmental problems
         1. Water, air, soil
         2. Biota
         3. Ecosystems
5. The era of ecosystem management (1975 to present)
   1. Ecosystem management
      1. Essentially a philosophical perspective
      2. Management informed by a holistic understanding of the components of ecosystems in terms of their attributes, functions, and interdependencies
   2. Adaptive management (Holling 1978, Maser et al. 1994, Walters 1986)  
        
      
   3. The Brundtland Report (WCED 1987)
   4. The Rio Summit – 1992 (United Nations 1992)
      1. Forest ecosystem sustainability
      2. The Montreal Protocol (criteria and indicators) - 1995
      3. The Helsinki Accords (C&I) – about same time
   5. Tying EM, AM and SF together
      1. EM identifies the principles
      2. AM specifies how to implement them
      3. SF specifies the objectives
6. Class discussion
   1. For example, how do you the European experience in terms of what I have described from an admittedly very US perspective?
7. Lecture 2
   1. We finally get to decision support

**Reading**

Reynolds, K.M. 2005. Integrated decision support for sustainable forest management in the United States: fact or fiction? Computers and Electronics in Agriculture 49:6-23.

**Additional references**

Holling, C.S., 1978. Adaptive Environmental Assessment and Management. Wiley, London.

Maser, C., Bormann, B.T., Brookes, M.H., Kiester, A.R.,Weigand, J.F., 1994. Sustainable forestry through adaptive ecosystem management is an open-ended experiment. In: Maser, C. (Ed.), Sustainable Forestry: Philosophy, Science, and Economics. St. Lucie Press, Delray Beach, FL, pp. 303–340.

United Nations, 1992. Forest Principles: Report of the United Nations Conference on Environment and Development.

United Nations, New York.

Walters, J.C., 1986. Adaptive Management of Renewable Resources. Macmillan, New York.

World Commission on Environment and Development (1987). Our Common Future. Oxford: Oxford University Press. p. 27. (easy to find on Wikipedia)