Seeking Sustainability

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Denman Forestry Issues Series

- Purpose –
  - to provide information and discussion on timely forestry and natural resources issues
  - to inform and educate landowners, professionals and the general public

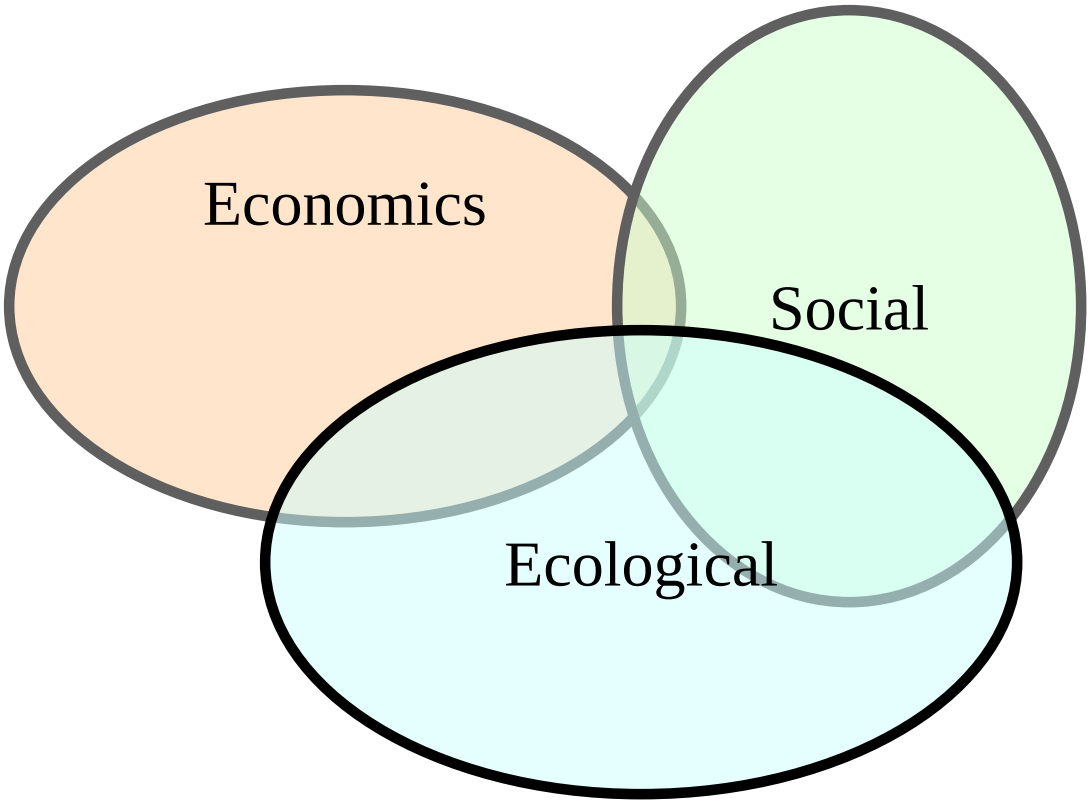
College Mission

- Study and investigate the functionality and sustainability of natural resource systems
- Natural and managed environments
- Interdisciplinary approach across multiple scales of urban and wildland landscapes

Sustainability

- Sustainable forests : Managed and natural
  - Plantations, parks, reserves, watersheds
- Sustainable urban environments
  - Urban forestry, horticulture, restoration ecology, water and wildlife in public gardens, green belts, open spaces
- Sustainable forest enterprises
  - Paper and saw mills, precision forestry technologies, tourism, recycling, nurseries, non-timber forest products

Defining Sustainability



What Is Sustainability?

- A set of activities or processes that produce desired products and services over long periods of time
- Rational approach that seeks a dynamic equilibrium
- Uses interdisciplinary set of social, ecological and economic sciences in an integrated fashion
- Future generations have the opportunity to enjoy the same products and amenities

Sustainability

- Definition conveys the idea that sustainability applies to all resources; considers the needs of future generations as well as those of the present; is concerned with ecological functions and condition; and is as much a social and economic as an ecological process

Sustainable Forestry

- Consider key values:
  - biodiversity
  - habitat protection and enhancement
  - riparian/wetland protection
  - maintenance of productive capacity
  - protection of endangered plants and animals
  - protection of cultural, spiritual, and historical sites

Sustainable Forestry

- A land stewardship ethic that integrates reforestation, growing, and harvesting trees for useful products while conserving soil, air, and water quality, wildlife and fish habitat and aesthetics, and protecting: a) the resource from fire, pests, and diseases and b) lands of special significance

Source: American Forest and Paper Association

Sustainable Forestry

- Managing a forest to meet all existing regulations such that environmental, social and economic factors are balanced to meet the needs of the present without compromising the ability of future generations to meet their needs

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- Complex undertaking
- Many stakeholders
- Multiple and conflicting goals (trade offs)
- Uncertainty
  - future societal needs
  - future state of ecosystem and unknown environmental factors
  - lack of complete understanding of ecosystem behavior and reaction to natural or man caused perturbations

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- The use of science is absolutely necessary to find the proper balance but is by no means sufficient
- Value preferences expressed through the economic, political,and legal systems will largely determine the ultimate balance
- Requires that we adopt an integrated, holistic, adaptive approach that simultaneously considers all values

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- Continue to use an adversarial process as expressed in:
  - Legislative environmental rules and regulations
  - Courts of law
- Or, adopt a science-based collaborative process conducted in a neutral environment (UW's proposed Northwest Environmental Forum). Use modern information sciences and decision support models.

Models of Sustainability

- Find best economic solution subject to ecological sustainability constraints
- Find best ecological solution subject to economic sustainability constraints
- Jointly optimize ecological and economic values

Observations

- The challenge to actually define and implement sustainable practices is tremendous
- It is a great challenge for educators, resource managers, scientists, and policy makers at the start of this Century

The Context of Sustainability

- Natural resource managers have a long tradition based on the concepts of sustainable resource use, protection, and carrying capacity
- Sustainable resource use has largely been synonymous with maximum biological sustained yield

The Context of Sustainability

- Few concepts have received more attention in natural resource management than that of sustained yield
- The basic idea is that existing stocks of natural resources should be managed to guarantee that rates of replenishment (restocking and growth) are in balance with rates of removal (harvest)

The Context of Sustainability

- Models largely constructed on the basis of biological productivity have been used to manage most of the world's renewable natural resources
- The concepts of carrying capacity and resource protection are largely enabling agents for sustained yield

The Context of Sustainability

- A century of economic research has failed to convince most natural resource managers to consider sustained economic efficiency on par with maximum biological productivity
- Economic efficiency requires a well defined property rights system to function properly

The Context of Sustainability

- For some natural resources (for example, fish and water) this does not normally occur. Instances of these common property or open access resources introduce complexities usually solved by regulation but increasingly regulated by transferable quota rights or other forms of economic incentive.

The Context of Sustainability

- In many instances, externalities and the notion of the public good complicate the management of natural resources which otherwise have established property rights

The Context of Sustainability

- Traditional models of maximum biological yield possess no inherent measures of equity – either economically or socially
- Further, they provide no guidance during the transition stage when renewable resource stocks are built up or drawn down to sustainable levels

The Context of Sustainability

- With the dismissal of economic efficiency as a guiding principle, these sustainable stock levels are largely determined by the inherent physical carrying capacity of the land
- In mixed capitalistic societies based on the notion of property rights and open markets, it is easy to understand why natural resource issues are so common and contentious
- Traditional concepts are too narrow and simplistic to serve as valid models for the future sustainable management of renewable natural resources

Multiple Use Concept

- Historically used as a policy instrument for rationalizing uses across a landscape
- Is largely normative and not prescriptive
- Too closely identified with forest outputs instead of desired future states. Multiple use must be modified to meet the changing demands of society.
- A new paradigm that extends our traditional reliance on multiple outputs is needed. Sustainability offers this promise.

The Context of Sustainability

- The current use of the concept of sustainability is much broader than the twin concepts of sustainable resource use and multiple use
- Sustainability requires an explicit consideration of ecological, economic and social factors not found in the above natural resource concepts

Seeking Sustainability

- This brief historical review illustrates the new complexities sustainability attempts to explicitly consider
- Our traditional models and management concepts worked well in the last Century but must be updated and/or replaced to serve the next Century

Today's Program

- This is the purpose of our program
- Speakers from government, higher education and the private sector
- Each will discuss how their organization is:
  - interpreting sustainability
  - implementing sustainable practices and
  - where the difficulties lie

First Speaker