



Strategies for Sustainable Forest Management

4

SUSTAINABLE FORESTRY IS widely discussed and almost universally desired, but tangible standards, goals, targets, or thresholds to evaluate sustainability are often defined vaguely. Identifying such standards is complicated by the diversity of forests, the diversity of objectives among forest decisionmakers (both public and private), the diversity of values among people who depend on forests, and the diversity of spatial and temporal scales that must be considered. The complexity of determining what is deemed to be sustainable, and by whom, leads to challenges in implementing and monitoring forest management. As a way of framing discussions about sustainability, we offer the following strategies which we believe are important considerations for sustainable forest management for ecoregions, States, and the Nation:

- Maintain a stable forest land base. This concept embraces strong sustainability and stresses the fact that goods and services provided by forests are irreplaceable. Thus, human-created capital is no substitute for forest land. Likewise loss of northern forests cannot be fully compensated by offsetting gains in forest area in other parts of the United States or the World.
- Maintain or increase forest biodiversity. This includes sustaining diverse populations of native plants and animals, diversity of forest ecosystems and habitats across the landscape, and genetic diversity of forest-associated plants and animals. Special emphasis is given to restoring species and habitats that are threatened with extinction, and controlling invasive species.
- Maintain diverse forest size structure and species composition on the landscape. Forests constantly change, but their trajectory of change is periodically altered by fire, insects, diseases, harvesting, weather, invasive plants, and other disturbances. Healthy, diverse forests can better cope with such disturbances and continue to function as forests.
- Maintain or increase the quality and quantity of water from forest ecosystems.
- Maintain or increase soil productivity and minimize soil erosion and contamination.
- Maintain or increase the capacity for sustained yield of timber and nontimber forest products and associated economic development.

- Maintain or increase forest-based employment and community stability. Commercial forest operations may be the most economical means of altering forest structure and composition in ways that are essential to achieving other goals such as habitat restoration, hazardous fuel reduction, or invasive species mitigation.
- Maintain or enhance the quantity and quality of forest recreation and other opportunities for people to experience forests.
- Maintain a system of institutions, policies, regulations, and incentives that support forest sustainability at multiple spatial scales.
- Increase environmental literacy and engage a wide range of stakeholders in sustainable forest management

Many readers will note that these strategies cannot all be pursued equally, and pursuing some will require sacrificing the extent to which others can be pursued. Tradeoffs and compromises are inevitable in striving for sustainable forests. Sustainable forest management requires careful thought about the full range of benefits and consequences associated with management actions or inaction.

Sustainable forest management is complicated by the multiple benefits and the large temporal and spatial scales that must be considered. For example, short-term decisions about forest sector employment and harvest practices can have long-term effects on biodiversity. Similar tradeoffs can arise across large spatial scales; one State's effort to increase the area of forest reserved for wildlife habitat diversity could transfer timber harvesting to other States or to other nations and alter habitat diversity or sustained timber yield there. Urban and rural forests provide many of the same ecosystem services, but differ in the type and number of interactions with people.





Strong and Weak Sustainability

Sustainability can be further classified into weak and strong sustainability (Pearce et al. 1994), with capital existing in three forms: natural, human, and human-made.

WEAK SUSTAINABILITY— Only concerned about the total capital value (natural + human + human-made) allowing for substitution among the three forms. Human-made or manufactured capital of equal value can take the place of natural capital lost as a result of development. As long as future generations are endowed with an amount of total capital that is not less than that of the current generation, the conditions of weak sustainable development are satisfied.

STRONG SUSTAINABILITY— Not merely concerned about keeping the aggregate stocks of capital constant, but also requiring maintenance and enhancement of natural capital levels (ecological assets and environmental quality) because the functions performed cannot be duplicated by manufactured capital.



