

II. DEFINING FOREST SUSTAINABILITY

Sustainability is an overarching goal and an extraordinary challenge for a diverse array of public and private organizations, agencies, and individuals. In forestry, it involves the continued existence and use of forests to meet human physical, economic, and social needs; the desire to preserve the health of forest ecosystems in perpetuity; and the ethical choice of preserving options for future generations while meeting the needs of the present.

Determining what is sustainable is a difficult task. It involves recognizing interconnections among ecological, social, and economic systems and competing views of acceptable tradeoffs among them. A framework of criteria and indicators of forest sustainability can be used to foster discussions on the meaning of sustainability for a particular time and place.

A. CRITERIA AND INDICATORS

Sustainability criteria are goals or categories that reflect broad public values and recognized scientific principles. In the context of forest sustainability, the term *critterion* refers to a category of conditions or processes by which sustainable forest management may be assessed. A criterion is characterized by a set of related indicators that are monitored periodically to assess change (Canadian Forest Service 1995, Montreal Process Working Group 1999). Appropriately written criteria are value free, but should provide a good sense of the relative importance society places on the many values of forests. They capture a wide range of values about the forest, including ecological, social, and economic values.

An *indicator* is a measurement of an aspect of a criterion. It is a quantitative or qualitative variable that can be measured or described, and which, when observed periodically, demonstrates trends (Canadian Forest Service 1995, Montreal Process Working Group 1999). Thus, indicators are measurable or describable characteristics of a criterion that provide a means for tracking changes in ecological, social, and economic conditions affecting forests. Well-chosen indicators are directionless, but offer the opportunity to identify the present state, past trajectory, and future trends for a criterion. These characteristics allow us to follow the course of an indicator over time and make value judgments about whether the course is positive, negative, or neutral. In turn, indicators often have metrics or verifiers that refer to specific data or calculations, or describe the way that indicators are measured.

B. THE MONTREAL PROCESS

The United States has participated in an international effort to develop criteria and indicators for tracking progress in forest sustainability. This effort, called the Montreal Process, identifies a framework of criteria, subcriteria, and 67 associated indicators (appendix A). The criteria and subcriteria are listed in box 1.

What is remarkable about the Montreal Process framework is that 12 nations with a wide range of social, cultural, economic, political, and ecological conditions were able to achieve the following:

- Come to a common understanding of the contribution of forests to the well-being of people,

II. Defining Forest Sustainability

- Agree on the forest conditions and related processes that must be maintained for forested ecosystems to endure, and
- Articulate a common desire for legal, institutional, and economic systems that work toward sustainability.

*Box 1. The Montreal Process criteria and subcriteria (Montreal Process Working Group 1999)**

Criterion 1—Conservation of Biological Diversity

- 1.1 Ecosystem diversity
- 1.2 Species diversity
- 1.3 Genetic diversity

Criterion 2—Maintenance of Productive Capacity of Forest Ecosystems

Criterion 3—Maintenance of Forest Ecosystem Health and Vitality

Criterion 4—Conservation and Maintenance of Soil and Water Resources

Criterion 5—Maintenance of Forest Contribution to Global Carbon Cycles

Criterion 6—Maintenance and Enhancement of Long-term Multiple Socio-economic Benefits to Meet the Needs of Societies

- 6.1 Production and consumption
- 6.2 Recreation and tourism
- 6.3 Investment in the forest sector
- 6.4 Cultural, social, and spiritual needs and values
- 6.5 Employment and community needs

Criterion 7—Legal, Institutional, and Economic Framework for Forest Conservation and Sustainable Management

- 7.1 Extent to which the *legal framework* (laws, regulations, guidelines) supports the conservation and sustainable management of forests
- 7.2 Extent to which the *institutional framework* supports the conservation and sustainable management of forests
- 7.3 Extent to which the *economic framework* (economic policies and measures) supports the conservation and sustainable management of forests
- 7.4 Capacity to *measure and monitor* changes in the conservation and sustainable management of forests
- 7.5 Capacity to conduct and apply *research and development* aimed at improving forest management and delivery of forest goods and services

* No priority or order is implied in the numeric listing of the criteria.

Use of the Montreal Process framework of criteria and indicators is supported by the USDA Forest Service and the National Association of State Foresters as the primary model to guide forest sustainability assessment (NASF 1997, USDA Forest Service 1999). The first national assessment using this framework, *The First Approximation Report for Sustainable Forest Management: Report of the United States on the Criteria and Indicators for the Sustainable Management of Temperate and Boreal Forests*, was issued in 1997 (USDA Forest Service 1997). In addition, there are many ongoing public and private sustainability indicators efforts ranging from local to international scales. Some predate the development of the Montreal Process framework and others embed indicators similar to those used in the Montreal Process into broader frameworks to assess sustainable development and other concerns.