

# Forest Sustainability Criteria and Indicators: A Common Language for the 20 States Served by the Northeastern Area

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The USDA Forest Service, Northeastern Area State and Private Forestry (NA) and the Northeastern Area Association of State Foresters (NAASF) are working collaboratively with the Northeastern Forest Resource Planners Association to integrate concepts of sustainable forest management into USDA Forest Service State and Private Forestry policies, monitoring and management programs, and technology transfer activities. A key component of this effort is built around a framework for measuring sustainability using sustainability indicators distributed among seven sustainability-related criteria. These criteria highlight important aspects of the conservation and management of biodiversity, forest productivity, forest health, forest soil and water resource quality, global carbon cycles, the social and economic benefits of forest use, and the status of the legal, institutional and economic framework that affects forest resource management. This framework was adopted from an international system referred to as the Montreal Process criteria and indicators (C&I). Components of the Northeastern Area effort to date include: (1) a C&I-based report on the status of forest health and sustainability in the 20-state region; (2) a sourcebook on C&I; and (3) selection of indicators to track at regional and state scales; and (4) a forest sustainability information clearinghouse. For more information, see the NA Sustainability Web Site: <http://www.na.fs.fed.us/sustainability>.

Keywords: *sustainability, indicator, biodiversity, forest productivity, forest health, forest use, forest policy, forest research, water quality, Northeastern Area*

## INTRODUCTION

Physical scientists help manage forests in a sustainable manner. A sustainability challenge, not fully met, is to integrate the fundamental knowledge of physical systems and their management with knowledge and activities occurring in the biological, social, economic and political realms. The USDA Forest Service, Northeastern Area State and Private Forestry (NA) and the Northeastern Area Association of State Foresters (NAASF) are working collaboratively with the Northeastern Forest Resource Planners Association (NFRPA) to integrate concepts of sustainable forest management into forestry policies, monitoring, management, and technology transfer programs. One focal point for this effort is the use of a framework of criteria and indicators of forest sustainability within their jurisdictions. The Northeastern Area includes the 20 states from Maine to Minnesota, south to Missouri, and east to Maryland.

## THE CRITERIA AND INDICATORS FRAMEWORK (C&I)

A criterion is a broad goal or category that reflects public values and scientific principles. An indicator is a measure of a criterion. Indicators can be quantitative or qualitative variables that, over time, will indicate positive or negative trends toward sustainability.

The C&I framework was developed in an international forum (Montreal Process Working Group 2001) and used in the United States to prepare the recent National Report on Sustainable Forests 2003 (USDA Forest Service 2003). It consists of sustainability indicators distributed among seven criteria that highlight important aspects of forest conservation and management including: (1) the conservation and management of biodiversity; (2) forest productivity; (3) forest health; (4) forest soil and water resource quality; (5) global carbon cycles; (6) the social and economic benefits of forest use; and (7) the status of existing legal, institutional and economic systems.

NA, NAASF, and NFRPA are using this framework to build a common understanding and language of sustainability with stakeholders and the general public. C&I components of the sustainability effort to date include: (1) a C&I-based report on the status of forest health and sustainability in the 20-state region; (2) selection of indicators for on-going at regional and state sustainability monitoring; (3) development and maintenance of a forest sustainability information clearinghouse; and (4) a book that introduces the benefits and challenges associated with the use of C&I.

#### FOREST SUSTAINABILITY ASSESSMENT FOR THE NORTHERN UNITED STATES

An indicator-based assessment can introduce the many facets of sustainability to the general public; contribute to informed discussions of the appropriate balance among ecological, social, and economic considerations; and provide a mechanism to track general information with regard to sustainability. To this end, NA and NAASF began work in 1999 on a Forest Sustainability Assessment for the northern United States that is being prepared for digital publication right now (will be available at [www.na.fs.fed.us/sustainability](http://www.na.fs.fed.us/sustainability)). The effort was intended to build on the base of information provided through the USDA Forest Service's Forest Inventory and Analysis (FIA) and Forest Health Monitoring Programs (FHM), and to provide insight into which federal, state and private inventory and monitoring programs, technical reports, journals, and other publications were relevant to this effort.

The assessment provided hands-on experience working with the C&I on a regional scale. It involved compiling data across state borders with the associated issues of data gaps and inconsistencies in terminology, inventory methods, and data and cartographic resolution. To add to the FIA and FHM program data, USDA Forest Service Research, the Natural Resource Conservation Service and The Nature Conservancy mined organizational databases for information specific to our needs. Existing Resource Planning Act [RPA] assessments and information from the national report on sustainable forests (USDA Forest Service 2003) were all critical sources of information. Over the course of the assessment, indicator related information has become more accessible through the Internet.

The technical report is currently being prepared for digital publication (available at [www.na.fs.fed.us/sustainability](http://www.na.fs.fed.us/sustainability)). Key points derived from the technical report were published in 2003 in Sustainability Assessment Highlights for the Northern United States (Carpenter et al. 2003).

#### NA AND NAASF BASE INDICATORS.

NA and NAASF have agreed to provide historical and current information on 18 specific indicators that can provide a strong base for state, multistate and area sustainability assessments (Table 1). These base indicators are derived from those in the international C&I framework, to insure linkage with national and international efforts. They span all seven international criteria, but are intended for use at regional and state scales. They were chosen because of their perceived utility by a wide range of stakeholders. There are some data gaps associated with this set of indicators, and data inconsistencies across state boundaries that will be worked out over time. The process used to select the indicators is documented in a publication, NA/NAASF Base Indicators of Forest Sustainability: Metrics and Data Sources for State and Regional Monitoring (USDA Forest Service 2003).

NAASF recommended that the indicators be used as the core of NA-wide forest sustainability C&I assessment reports that are planned to occur every five years, at a minimum. The base indicator information will be posted online, and NA will be responsible for ensuring the currency of the information. Benefits of online indicator reporting include the ability to post new data as soon as it becomes available, rather than waiting a full reporting period; providing stakeholders with easy access to data; and the ability to query data sets to retrieve graphs, download data, and generate summary reports.

#### SUSTAINABILITY CLEARINGHOUSE ACTIVITIES

As part of the overall initiative, NA serves as a clearinghouse for information and inquiries regarding sustainability from state forestry agencies, the Forest Service, other public agencies, nongovernmental groups, and stakeholder groups. The clearinghouse helps raise awareness about sustainability and NA/NAASF sustainability efforts. It helps in uncovering opportunities to integrate regional, national, and state work. A key component of the clearinghouse is the Northeastern Area's Sustainability Program Web site (<http://www.na.fs.fed.us/sustainability>). The site provides information on national, regional, and local sustainability assessments, strategic and state forest resource planning, sources of ecological classification and mapping, forest certification, and up-to-date information on the status of the NA/NAASF sustainability efforts. For example, because the C&I framework spans the fields of physical, biological, social, economic and political, science, management, and policy, it can seem overwhelmingly complex on first introduction. To reduce the learning curve, a publication is available on the Website called Sourcebook

on Criteria and Indicators of Forest Sustainability in the Northeastern Area (USDA Forest Service 2002). This publication outlines the basic use of C&I to assess forest sustainability, summarizes information on the development and use of C&I by various organizations and agencies, provides a list of recommended resources, and presents information on the NA, NAASE, and NFRPA sustainability work. It is intended as a starting point for states and other organizations to help guide their efforts to use criteria and indicators for assessing forest sustainability. Up-to-date displays of the base indicator information will be a major feature of the clearinghouse Website.

#### NEXT STEPS FOR C&I EFFORT

Over the next several years, the effort will focus on four areas: (1) focusing on data issues and gaps in information needed to address the 18 base indicators; (2) developing the base indicator on-line clearinghouse; (3) increasing awareness of the C&I framework and the base indicator web site through education and training; and (4) development of the first five-year assessment that incorporates the 18 base indicators.

The on-line clearinghouse is currently being developed to provide indicator reports with user-friendly graphs, maps, and tables at regional, state and other scales, where appropriate. The target audience includes state foresters, planners, policymakers, other natural resource professionals, and people doing strategic planning. Where possible, data will be displayed to show trends over time and users can download data tables. It will also have links to the data sources and to additional information and resources.

#### SUMMARY

The USDA Forest Service, Northeastern Area, State and Private Forestry and the Northeastern Area Association of State Foresters share a commitment to the sustainable management of forests. They have determined that criteria and indicators provide relatively complete, accurate, and unbiased information on forest conditions, the factors that influence forest conditions, and the way changes in forest conditions affect the benefits derived from forests. Thus, a suite of 18 indicators consistent with the C&I framework have been adopted by the USDA Forest Service, Northeastern Area and the Northeastern Area Association of State Foresters. They are intended to provide a base of comparable information across state borders through state and regional assessments, and are a valuable means of tracking the effectiveness of agencies' programs and policies (USDA Forest Service 1999).

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