FORESTS FOR TOMORROW

Sustaining the Values, Services and Products of Our Nation's Forests for Future Generations

Full Statement by the National Commission on Science for Sustainable Forestry (NCSSF)

(June 10, 2008)

A CALL TO ACTION

The National Commission on Science for Sustainable Forestry (NCSSF) has concluded that the United States urgently needs to develop an integrated public-policy framework to sustain our nation's forests that is relevant to America in the 21st century.

The benefits that forests provide to our quality of life include air and water quality, renewable energy, jobs, economic growth, wildlife and fish habitat, wood products, recreation, and opportunities for our people to enjoy solitude and experience natural beauty. Forests also play an increasingly important role in addressing some pressing large-scale challenges to achieving a sustainable future for our nation. Climate change and future water supplies are among these leading challenges that forests can positively impact.

Forests now cover about 1/3 of the land area of our nation. This is 1/3 less forests than existed when European settlers landed on the eastern shores. Forest loss has and continues to reflect the social and economic development of the nation. In 1850 the United States had the equivalent of 40 acres of forest per person; in 2007 this per-capita amount had dropped to 2.5 acres.

Yet, no coherent policy to sustain U.S. forests exists today. Instead, we have a "crazy quilt" of single-purpose laws and years of case-law precedents, some of which are applied in contradictory ways.

As we try to maintain forests under this policy patchwork, an overwhelming array of simultaneous changes continues to affect the ability of forest ecosystems to sustain all the benefits they provide to society. We need to develop and implement a new basis for public policy for U.S. forests in order to better link current scientific knowledge to sustainable forestry.

THE COMMISSION'S ROLE

The Commission was created in 2001 to improve the scientific basis for sustainable forestry practices in the United States. Our first task was to identify significant gaps in scientific knowledge. Then we commissioned more than 40 research projects, headed by leading scientists, to develop knowledge to fill those gaps. Finally, we carefully reviewed and analyzed the research results and conclusions.

In the course of our work, it became clear to us that, although there are still significant gaps in scientific knowledge, the primary barrier to sustainable forestry management in the United States is the ever-increasing inadequacy and inherent conflicts in existing forest policies.

NCSSF-sponsored research projects and other current research efforts cannot achieve their full potential for improving sustainable

forestry without major changes in existing policies. This is true for many of our results in areas such as applying sustainability indicators, managing non-timber forest products, using adaptive management, addressing non-native invasive species and managing post-fire forest recovery. For example, we need policies that enable landscape-level forest planning and management coordination across ownership types together with incentives for private landowners to practice sustainable forestry and conserve native plants and animals.

The current institutional, legal and policy framework for forest conservation and sustainable management in the United States has been developed piecemeal over many decades. It addresses historic circumstances and challenges that were very different from those that we face today and is based on outdated scientific knowledge and old trends.

An integrated public-policy framework for U.S. forests must identify the key challenges to sustainability and recommend actions to address them.

It must help federal policymakers, as well as those who shape state, local, tribal and private sector decisions, develop new, mutually complementary forest policies that will ensure that future generations will continue to receive the many essential values, services and products that our forests provide.

What part will forests play in strategies to respond to increasing energy demands and global climate change? Where will the nation get wood products to build homes for its growing population? We need policies to address these key questions and many others about the future of our forests.

The integrated public policy framework we are proposing must address the capacity of the nation's institutions and programs to implement new forest policies adequately. It also must address the adequacy and effectiveness of incentives to sustain America's predominantly private forests.

WHAT CHANGES DO WE FACE?

Changes and continuing trends that will affect U.S. forests and forest management include:

- a projected population increase of 100 million in the next 35 years, mostly in urban and suburban areas in the South and West
- rapid land development, which currently results in the loss of forest and open space in the United States of about 6,000 acres a day
- concerns about climate change and energy security that will demand the use of forest resources to mitigate greenhouse-gas emissions and provide renewable energy
- changes in climate that will alter forests in ways we do not yet understand and challenge our ability to maintain forest health and productivity.
- significant growth in markets for traditional and emerging wood-based products that will change the major economic incentives for most private forest owners
- a near doubling of total U.S. consumption of wood products over the past four decades that is projected to increase by another 38% by mid-century
- an increase in imports of softwood lumber from 15% to nearly 40% of the total amount used in this country during the same period, projected to increase until 2015 and then decline by mid-century

- a major shift in ownership of the nation's largest and most productive private forests from forest products companies that have invested in science and management for long-term sustainability to investment organizations with a focus on different goals than historical industrial owners
- an unprecedented transfer of family-forest ownership over the next 15 years, driven by the aging of present owners, with major changes expected in commitment by their heirs and other new owners to continued conservation and sustainable management of forests
- increased size and frequency of wildfires on public land in the western states and Alaska and the limitations in the use of prescribed fire in the southern states, increasing the risk of significant losses of lives and property and greatly diminishing the sustainability of forests themselves
- changes in forest structure that have increased vulnerability of western forests to large, intense wildfires that, if treated, could provide fuel to generate renewable bio-energy by marketing woody biomass such as branches, shrubs, twigs and wood chips from forest thinning.
- continuing introduction of invasive non-native plant and animal species, some of which can radically transform the composition and function of forest ecosystems
- declining education of forestry professionals who can integrate and apply knowledge across various disciplines and a decline in capacity in many areas of forestry research that is essential to meet future sustainability challenges

THE CONTEXT FOR ACTION

Forests are one of the Earth's richest and most extensive ecological systems. They interact with the atmosphere, water and soils in ways that make other life possible.

Forests are vital to civilization, but the very civilizations they serve have subjected them to dramatic transformation and in many cases outright destruction. Since the advent of agriculture nearly 12,000 years ago humans have converted an estimated 50% of the planet's forests to other land uses to meet their growing needs for food, fiber, homes and industry.

Much of this transformation has occurred during the industrial era of the last 150 years. The primary effect has been that more people are now adequately fed and housed while many other forms of life and forest goods and services have been depleted.

However, the quality of human life is lessened by the reduction in forestland—especially the lives of people and communities whose livelihoods are directly linked with forests, forest uses and forest products and services

There is much to celebrate in the history of forest management and conservation in the United States. Our scientific understanding of forests has improved steadily and substantially over the past century. Vast areas that were deforested and degraded by unsustainable agricultural practices during the 18th and 19th centuries were reforested during the 20th century. This great restoration was catalyzed by advances in technology and changes in policies. It was implemented through cooperative efforts of public and private institutions and supported by massive investments in land, research and management systems.

However, we cannot respond effectively to future growth in demand for forest values, services and products without substantial reform and revitalization of policies, institutions and programs that affect innovation and investment in forest management. Failure to act will lead to major impacts on the lives of all Americans. These impacts will fall even more heavily on future generations if we don't immediately begin to respond to the changes that our society faces.

THE ROLE OF BIODIVERSITY

Through its research and deliberations about the role of science in sustainable forestry, NCSSF has developed a number of key findings that provide a foundation for a national dialogue on forest policy. One overarching theme that characterizes these findings is the key role of biodiversity.

The bedrock for sustainable forestry can be expressed in a single axiom:

We depend on and manage forests for a variety of values and benefits that ultimately derive from forest biodiversity.

Although sustaining biodiversity must be a central concern of sustainable forestry, we face an even greater challenge. To achieve sustainable forest management, we must first keep our forestlands forested.

The United States is currently gaining almost as much new forestland in young forests on rural lands not previously forested as the amount of established forestland that we are losing near surging urban areas. Although the areas are nearly equal at the national scale, this is not an ecologically equal exchange. The established forests that we are losing around urbanizing areas are those most needed to provide clean water and air, recreation and other ecosystem services to growing human populations.

WHAT IS SUSTAINABLE FOREST MANAGEMENT?

A broad and simple definition of sustainable forestry has emerged from the Commission's seven years of deliberation, research and analysis:

Sustainable forestry is the set of policies and management practices that will ensure that current and future generations enjoy the full variety of forest values, services and products.

Two important corollaries to this definition are:

- No forest can provide all of these values and benefits in the same place at the same time.
- Demands for certain values and benefits can conflict rather than complementing each other, while others can be accommodated simultaneously with appropriate management.

Sustainable forest management began evolving internationally during the 1970s and 1980s. It was formally and definitively recognized at the 1992 United Nations Earth Summit in Rio de Janeiro and its subsequent regional protocols. It has emerged simultaneously in both the public and private forest sectors of the United States.

Sustainable forest management recognizes that a broad continuum of management purposes and practices is necessary to provide the full array of forest values and benefits upon which human life depends. Biodiversity is fundamental to sustainability across this entire continuum.

Sustainable forest management strives to deliver economic, environmental and social benefits from forests in ways that minimize conflict and maximize synergies among management goals and practices. It must

integrate the delivery of those benefits because there simply isn't enough forestland to give every resource interest and value its own unique slice of a shrinking pie.

Thus sustainable forest management at any place on the continuum and the landscape must focus on the distinct purposes and potentials of a particular forest and work to complement the management purposes and practices being employed for neighboring forests regardless of ownership and purpose.

Sustaining U.S. forests is not simply about conserving representative examples of various kinds of forests. It requires that forestlands be allocated in a balanced fashion across the continuum. It also demands that policymakers and managers seek a mutually complementary mix of ownership classes and ecosystems. This mix includes:

- ***Forest reserves*** at one end of the continuum. These forests are protected from commercial development and play a central role in perpetuating native species, "wild" ecosystems and natural processes that are not compatible with high levels of human activities.
- ***Wood-production forests*** at the opposite end of the continuum. An increasing acreage of commercial forestland on private lands is planted rather than established by natural processes and is intensively managed primarily to meet human needs for wood and wood-based products. The sustainable productivity of these forests depends on rich and diverse plant and animal life, and they can harbor much biodiversity.
- ***Multi-resource forests***, where no single purpose dominates, which are between reserves and wood production forests. The majority of U.S. forests are officially designated as multi-resource or managed as multi-resource by the landowners.
- ***Urban forests***, a special and growing type of multi-resource forest.

WHAT DO WE NEED?

Given the magnitude of past change and projected future change, we need an integrated 21st Century public-policy framework for U.S. forests.

The path to sustainable management for our nation's forests ultimately depends on how we respond to that need.

The Commission proposes that all interested groups work together to begin reshaping forest policy and practice change now.

An Integrated 21st Century Public-Policy Framework for U.S. Forests

We must review forest laws, regulations, and incentives and incorporate them into an up-to-date and integrated national policy structure that reflects contemporary forest ownership, science, uses and values.

Some current policies, laws and regulations are contradictory, and many address past needs and concerns but not current or future ones. Many regulations that apply to private forests have effects that are opposite to their intent and many "incentives" no longer motivate contemporary forest owners.

Regulations and incentives must be designed to do more than just keep forestlands forested. They must conserve forest values and services in the face of change. Some specific elements include:

- recognizing the value of the forest purpose continuum because all of the benefits for which we value forests can't be provided equally and simultaneously at all places

- valuing each forest on the continuum for the specific benefits that it provides
- providing coordinated management across ownerships and jurisdictions in recognition of the fact that many forest benefits accrue only from broad landscapes that are often in mixed ownerships with diverse purposes
- facilitating planning and management of forests in the context of rapid change, at least some of which can't be accurately predicted, demanding active adaptive management in which decisions are made as part of an ongoing science-based process
- providing institutional structures for planning that address conflict in constructive ways, enabling planners to learn from adopted approaches
- developing enduring and predictable incentives to reward private forestland owners for the services that their forests provide to society

Integrated policy must be based on a national consensus regarding the many values of forests. It must bring an understanding of public values, attitudes, knowledge and behaviors to the forefront of forest and biodiversity management and policy planning. It must employ multi-objective, participatory approaches that increase learning among all participants, build mutual trust and recognize the public as an equal partner in sustainable forest management while recognizing the rights and responsibilities of private landowners.

NCSSF "Forests for Tomorrow" National Conference

On May 20 and 21, 2008, the Commission sponsored a meeting, inviting a broad spectrum of individuals and organizations concerned about the future of the nation's forests. Fifty individuals from government, industry, academia, and environmental organizations attended to discuss the need for and elements of a national policy framework. A report summarizing the conference is available at our website, www.ncssf.org.

Attendees reaffirmed the vision that conservation and sustainable management of the nation's forests are very important for the multiple social, economic and environmental values they provide. They supported the need for a public policy framework to sustain those values. The retention of forestland in ecologically healthy forest uses is the cornerstone of this framework. To achieve this goal, public and private landowners need cash flows from the full spectrum of forest products and services that allow them to invest in forests to provide the suite of forest values desired by the public.

Policy makers need to examine and appropriately adjust tax policies and mechanisms for financing forest ecosystem services and values so they support these investments. Local collaborative approaches are important to achieve forest management decisions and actions that support local, states, and national needs. Decision makers should examine and revise collaborative approaches so they are inclusive and facilitate cross-boundary management capabilities. Finally, investing in research and technology to enhance both global competitiveness of domestic forest products and ecological resilience of forests to climate change and disturbances is imperative.

COMMISSION RECOMMENDATIONS

A successful national dialogue process can lead to a comprehensive and integrated forest policy framework that will remain dynamic and responsive to future environmental, economic and social changes. The Commission recommends the creation of:

- A Presidential Commission on Sustainable Forests
- A Congressional Forest Caucus and forest committees in the National and regional Governor's Associations
- A National Council on Forests as a broadly based coordinating organization to guide a multi-year policy reform process

These multi-stakeholder bodies should carry out the following actions:

- Develop a framework for action based on a set of principles that can guide the creation of coherent federal and state forest policies, and capture the diverse perspectives of various stakeholders
- Conduct a top-to-bottom review of international, federal, state, and local tax policies affecting domestic forests
- Formulate federal agency policies that facilitate greater local planning and actions across public and private forest ownerships at landscape scale
- Invest in research and technology to enhance both global competitiveness of domestic forest products and ecological resilience of forests to climate change and disturbances
- Create stronger integration of forested watersheds into water resource planning including development of appropriate incentives to maintain and enhance watersheds that provide water for consumption and economic development
- Create a comprehensive approach to the coherent use and effects of fire in forests, that integrates prevention and control of wildfires, use of prescribed fires and impacts of resulting smoke as an element of air quality
- Develop new, more holistic approaches to communicating forest values to the public and the media

As we move toward the end of the first decade of the 21st Century, our nation's forests face an array of challenges to their ability to sustain all the values, services and products that they provide to our society. We must successfully address those challenges if we are to sustain these benefits for future generations.

APPENDIX: NCSSF PROGRAM SUMMARY FINDINGS ABOUT BIODIVERSITY AND SUSTAINABLE FORESTRY

1. The processes that maintain forest biodiversity operate across multiple scales of space and time.

At the level of individual forest stands (distinguishable, contiguous areas of trees reasonably similar in age, composition, and structure), forest biodiversity is supported by horizontal and vertical complexity that provides a multitude of plant and animal habitats. Diversity of tree species and age classes, including dead snags and downed trees, add significantly to this complexity and habitat diversity. At larger spatial scales—landscapes and regions—forest composition and structure change in response to different management histories and to variations in terrain that produce differences in microclimates (the climate of a small, defined area); nutrients that plants need to survive and grow; and the movement, distribution and quality of water. At regional scales, variations in climate and soils add yet more physical complexity to support higher biodiversity.

2. Biodiversity conservation across the continuum of forest purposes and management strategies depends on how well those strategies are integrated across scales of time and space.

The first U.S. national forests and parks were reserved from private development more than a century ago. Little thought was given to spatial or temporal scale through much of the early history of the establishment of national forests and national parks. As a consequence, many of these forests and parks can't by themselves sustain the full richness of the biodiversity that occupies them on a seasonal basis. In many cases key seasonal habitats for migratory species had already been privately developed. Furthermore, the scale and boundaries of most national forests and parks are at best arbitrary and irrelevant to the scale and distribution of disturbance processes necessary to maintain a significant portion of their biodiversity.

There is great opportunity at landscape and regional scales to take advantage of the entire forest management continuum to benefit biodiversity and enhance other forest values and benefits. This will be most successful when the forest purpose continuum is managed so as to represent the spatial scales, frequencies and successional legacies associated with disturbance and successional change (ecological succession is the change of plant and animal communities over time). Although some details remain unclear, the spatial relationships among management patches on a landscape also influence our ability to sustain forest values and benefits. Development of landscape and regional scale management strategies has great potential to enhance forest values and benefits. However, fragmented ownerships and the absence of institutional structures to facilitate collaboration are significant challenges to such management.

3. The introduction of non-native invasive species has a myriad of consequences for forest management and biodiversity.

The accidental and intentional redistribution of organisms must be ranked among the most significant of human impacts on Earth's ecosystems, and forests have been particularly affected. Non-native fungal and insect pests and parasites have devastated populations of dominant native trees, including chestnut, elm, Fraser fir and hemlock, and altered the overall

composition of tens of millions of forest acres. Herbs such as garlic mustard have displaced native herbaceous plants and altered nutrient cycles of many forests. Invasive non-native grasses and shrubs have altered fire regimes, increasing fire risk in some locations and diminishing it in others.

4. Biodiversity is inherently complex and only partially comprehensible, thus we need indicators to make its conservation and management tractable.

Biodiversity comprises a myriad of elements and processes that are literally unknowable in all their complexity and an array of values can be derived from that diversity. Therefore the abundance of existing and potential biodiversity indicators to simplify the complexity is no surprise. Biodiversity indicators are a relatively few measures that provide information about the status of as many unmeasured biodiversity elements as possible. No single set of indicators serves all situations and objectives, but there are processes for selecting indicators that are highly relevant and useful to particular management goals and geographic and social settings. It is meaningless to talk about biodiversity as if it always means the same thing. It only gains meaning when the indicators chosen inform people on what specific biodiversity values and processes are in focus.

5. Decision support systems can enhance our ability to adaptively manage for competing and potentially complementary forest values and benefit.
Decision-makers faced with choices that affect forests and biodiversity need better tools to guide their decisions and practices. Decision support systems are computer-based programs that help decision makers use data and models to identify and solve problems and make decisions. New technologies combined with scientific information from on-the-ground research can provide a variety of very useful analytical tools that managers can use to integrate information from a variety of sources. These tools are most useful when they are employed in an intelligent "social conversation" that brings mutual understanding and general agreement on forest values and forest conditions that are important to maintain or avoid. All models are imperfect representations of the "real world." Thus their effective use requires careful understanding of their key assumptions, unknowns and limits.

6. Shifts in forest ownership and demand for forest products have significant implications for biodiversity and the forest benefits and values that derive from it.

Biodiversity conservation strategies must be tailored to ever-changing patterns of forest ownership and demands for forest products and values. Forests are dynamic on multiple scales of time and space in terms of ownership (private forests) as well as biology (all forests).

7. Many people lack an understanding of the importance of forests to human well being and a shared vision for the future of forests and their biodiversity.

With a growing population increasingly disconnected from forests, physically and educationally, the very limited appreciation of forest values and benefits and the lack of a shared vision for their future are the greatest threats to our forest legacy.

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