

USDA Forest Service Sponsored:

Outlook Forest Research Dialog

*“Developing Research Options to Address
Future Decision Makers’ Needs”*

Workshop Report

Decision Makers’ Future Needs

*September 27-29, 2005
Baltimore, Maryland*

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This project is conducted for the USDA Forest Service by the National Council for Science and the Environment (NCSE) a non-profit, non-advocacy organization with the mission of linking science to the priority needs of decision makers.



Workshop Summary

The *Decision Makers' Future Needs Workshop* was held September 27-29, 2005 in Baltimore, MD, as part of the USDA Forest Service (USFS) Outlook Forest research Dialog to develop a long-term research options in collaboration with the broad forestry community.

The purpose of this workshop was to have a diverse set of decision makers frame an attainable vision of the future for US forests and forestry. The attainable future then served as the basis for anticipating the types of scientific information and tools required to reach that future.

Prior to the workshop, a survey was conducted with over 50 key forest-focused individuals, including all the workshop participants. The survey elicited a range of views on the trends, challenges, and opportunities facing forests and forestry in the US over the next 20 years. The survey results were used to initiate the workshop discussions.

The workshop deliberations produced four substantial results:

- A general consensus evolved on both the desirability and attainability of a future for US forests and forestry that embodied environmental, social, and economic sustainability. Participants reached this consensus despite the fact that they were encouraged to envision divergent and alternative views of the future. They were not pushed to compromise on a single least objectionable outcome. Even in concurrent work sessions, participants reached parallel conclusions, revealing an unexpectedly high degree of consensus among diverse stakeholders.
- The workshop identified not only the forest information and tools needed to attain the envisioned future, but also a range of urgently required societal needs beyond forestry. These needs include new forms of governance and decision making, enhanced public awareness, and shifts in public values as keys – or obstacles – to obtaining the envisioned sustainable future.
- The importance of maintaining working forests was discussed as a key factor in sustainable forestry for keeping forests lands in forest use rather than conversion to non-forest uses that lose the values provided such as rural employment, biodiversity and ecosystem services.
- The impact of global factors in both the marketplace and policy arena – on national, regional, and local scales – was repeatedly acknowledged as a major driver for the future of US forests.

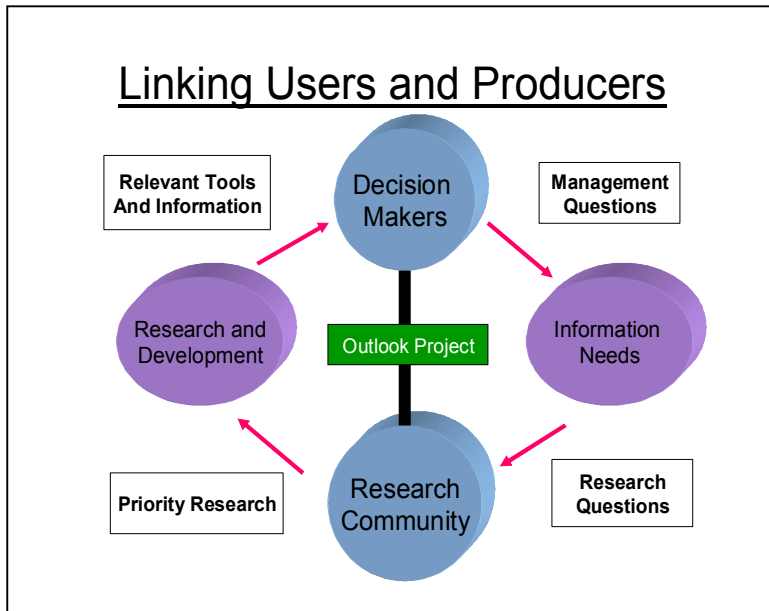
Workshop participants included leading individuals who use scientific information in making forestry-related decisions, from federal, state, and local government agencies, the business community, non-governmental organizations, and academic institutions.

The output of this decision makers' workshop will be used in a second workshop of researchers and managers in late winter 2006, to identify the science responses most relevant for addressing the future needs of decision makers. By engaging the forestry community broadly in the Outlook Project, the USFS looks to build a shared basis for increased research coordination and partnerships to ensure sustainability of the Nation's forests.

I. Introduction to the Outlook Dialog

The goal of the Outlook Dialog is to provide a better basis for the USDA Forest Service and other organizations to develop research to address decision makers' future needs. In framing a long-term agenda, research sponsors, such as U.S. Forest Service, face two key obstacles:

1. Given growing demands and tightening funding, how to get the best return on research and development investments in providing useful information for decision makers
2. Considering the increasing rate of change and uncertainty, how to plan research and development that anticipates the future needs of society

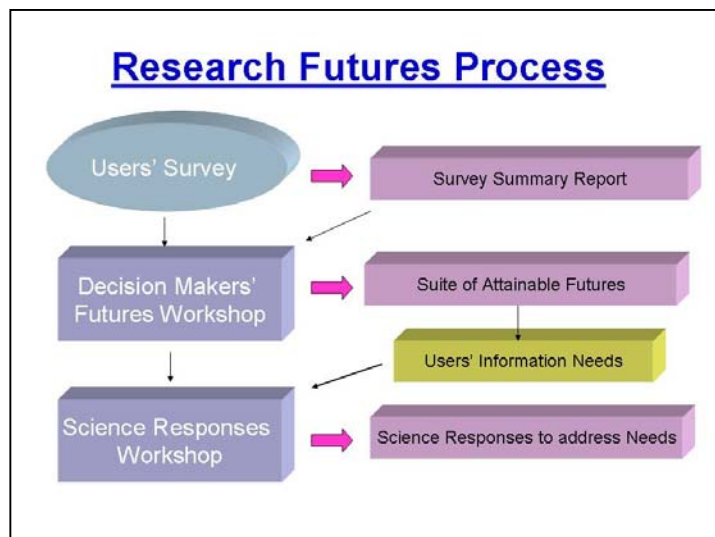


To overcome these obstacles, the first round of the Outlook Dialog used a *Research Futures Process* that first identifies the future needs of decision makers – policy makers, managers, and practitioners – and then define the science responses required to address those practical needs.

The project began with a survey and workshop dominated by decision makers; it will be followed by a second workshop engaging researchers to frame the science to address the user-defined needs. This phased approach is

important because decision makers and researchers view and value information differently. The information most needed for application by decision makers often is not the same as the information researchers seek to advance the frontiers of science.

To address the challenge of anticipating the future needs of decision makers, the project uses a multiple futures approach that has been successfully applied to climate change research. This enables participants to think more creatively about the future and possible ways to address emerging issues with science responses relevant to crucial decision making.



The Outlook Dialog is engaging the broad forestry community in both framing decision makers' future needs and identifying the research required to serve those needs. The entire process is participatory, both to ensure stakeholders' input and to build support for a

shared vision of the Nation’s highest priority research to improve decision making. The resulting science responses will help foster collaborative work across all sectors, leading to partnerships and synergies in conducting the nation-wide research effort and meeting the challenges of managing for a sustainable future.

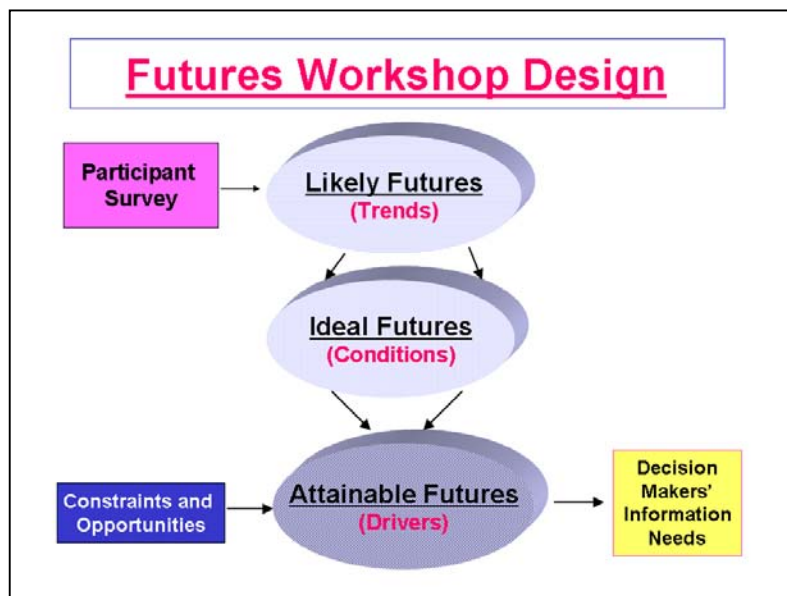
A. Dialog Components

The Outlook Dialog’s *Research Futures Process* has three components. The first component was an email and telephone survey of over 50 key forestry decision makers and experts during spring 2005. The goal of the survey was to determine what these diverse stakeholders considered the most significant trends affecting US forests and forestry over the next 20 years, the drivers and consequences of these trends, and options for addressing them. The summarized survey results served as the starting point for the workshop described in this report.

The second step, the *Decision Makers’ Future Needs Workshop*, was held September 27-29, 2005 in Baltimore, MD. Participants included users of forestry research who met over three days to define both a set of possible futures for forests and forestry in the US and then to identify the resulting information needs for the coming 20 years.

The workshop futures process had four different sessions sequentially considering aspects of the future. First, the participants were asked to envision the *likely future* that would result based on the status quo, projecting current trends out 20 years. Traditional efforts to predict the future usually stop here with one “best guess” by experts based on existing factors. The projection of existing trends typically results in a future that is not desirable to most people.

The second session envisioned *ideal futures*, setting out the participants’ aspirations free from the constraints of current trends and barriers. This session creatively built on the conditions people wish for in a better future. It also set the stage for the next session, which was grounded in reality of what is attainable.



The third session examined the *ideal futures* and what elements of them appeared possible to reach as an *attainable future*. The fourth and last workshop session reviewed the *attainable future* and identified the information, tools, and other changes needed to reach that vision.

The next step in the Outlook Project the *Science Responses Workshop* for researchers and managers, set for March 7-9, 2006. At this workshop, a diverse group of scientists will examine the needs identified during the

decision makers' workshop and develop science responses to address the users' future requirements. With input from workshop participants and USFS managers and researchers, NCSE will develop a final report describing the science responses.

II. Results: Decision Makers' Future Needs Workshop

Workshop participants developed a clear consensus on both the desirability and attainability of a future for US forests and forestry that embodied environmental, social, and economic sustainability. The workshop process encouraged participants to develop *multiple* futures, challenging each other to consider plausible alternatives while *not* forcing participants to reach a consensus that reduced ideas to one acceptable outcome. The strength of the consensus reached is revealed by the fact that, although they considered multiple possibilities, participants ended up identifying a single attainable future characterized by the aspects listed below.

The *attainable future* was created by the group after first considering two other views on the future: (1) the *likely futures* based on projecting current trends; and (2) *ideal futures* that can be envisioned based on our aspirations to go beyond the status quo. The *attainable future* was developed by incorporating elements of the ideal futures into a vision participants believed is attainable by 2025. Both of the intermediate futures that participants used to generate the attainable future are described later in this report.

A. The Attainable Future for US Forests and Forestry in 2025

Workshop participants were asked the question, “*What futures are attainable, moving closer to our ideals, and which drivers are required to achieve them by 2025 in US forests and forestry?*” The attainable future that emerged in parallel from both breakout groups was characterized by:

1. ***Sustainability*** – US forests are a model of sustainable forest management because national policy and leadership supporting sustainable forests have been implemented, and managers and conservationists are in agreement about sustainable management practices. The US includes a sustainable economy and environment as one of its central policies.
2. ***Healthy Working Forests*** – Education has led the public to better understand forest management, urban forests, and ecosystem services and to policies that foster heterogeneous, multi-use adaptive landscapes. Watershed-level land use planning to conserve forest values increases. Endangered and ecologically important forests have been mapped and protected, and forest restoration is on-going, financed largely through the sale of forest goods and services.
3. ***Competitiveness*** – The US forest products industry is a competitive player globally and from North America serves diverse US needs because tax policy provides incentives to maintain working forests; landowners receive payments for ecosystem services, and a business climate has been created that attracts capital investment to US mills. Pieces of the value chain remain in rural communities where small, local and bioregional industries thrive because business is structured around small units and eco-industrial clusters (e.g., one creates a by-product, another uses it).
4. ***Public Engagement*** – Greater public involvement occurs at all levels because natural disasters have promoted involvement and people have increased access to information

sources. Conservation education thrives; curricular changes include holistic, ecosystem based approaches where the human health/environment interdependency is appreciated.

5. **Collaboration** – The public is better aware of the wide array of values that can be derived from the forests, because forest managers are modeling how to successfully manage for multiple values and are trained to understand and incorporate multiple perspectives into their decisions. People work more effectively together to manage conflicting priorities because they have the needed skills and training to deal with conflict proactively. Successful social science-based approaches are being applied and replicated.
6. **Leadership** – Leadership in forest management and stewardship has grown at all levels, from small rural communities to executive offices. Because the forestry profession has reclaimed its “white hat,” it attracts creative, innovative, and entrepreneurial high achieving students. Space has been created for others to “play on our stage” (i.e., within SAF), and foresters are ready to work with others, such as in the energy arenas.
7. **Biofuels** – A significant shift to forest-based biofuels has occurred as part of the US effort towards energy self-sufficiency. Policy calling for reduced use of fossil fuels drives a trajectory toward stable green house gas concentrations.
8. **Research** – A sustained commitment to long-term research exists because research community leaders have agreed upon roles and the priority areas of research and development. Market opportunities for forest-based products and services (including quality of life values) has expanded because major investments have been made to further forest biotechnology, genetic technology, nanotechnology, and other innovations to gain new markets. A competitive research proposal process is rooted in a shared vision of the Nation’s forests.

Workshop participants acknowledged that much of the attainable future involves changing public policy. One suggested overarching need was for policy and social science research on better ways for managing natural resources with effective public participation.

B. Decision Makers’ Needs for 2025

The final task of the workshop was to (1) define a set of needs to address future issues for forest-focused decision makers and (2) to begin identifying the scientific data, information, knowledge, and tools to address those needs. Throughout the workshop, participants considered the environmental, social, and economic aspects of forest-based US futures. They also used this framework to identify the following decision makers’ needs, based on achieving the *attainable future*:

1. Forest, Watershed, and Landscape-Level Conservation – Needs include:

- Ecosystem management strategies, including affordable incentives and effective marketing approaches, that provide desired human values *and* sustain ecosystem services and processes
- A system for monitoring remote sensing data, including unique landscapes, to reduce impacts and a means of translating available data to users in a useful format and in real-time
- An understanding of both forests at risk and the implications – including costs – of sprawl, development, wildland-urban interface, habitat fragmentation, etc.
- Cost assessment tools for easements and other forest conservation mechanisms
- Incentives, including policy and tax changes, that support and promote working forests, allow efficient land use within legal constraints, and encourage participation in land use planning
- Increasing coordination and collaboration between federal and state agencies

2. *Invasive Species Management and Ecosystem Restoration* – Needs include:

- Defining within ecological principles the *appropriate* distribution of disturbance and protection, including the difference between an invasive and a migrating pioneer species
- Reducing restoration costs and increasing markets for longleaf pine and other restoration species and products

3. *US-Based Forest Business* – Needs include:

- Incentives for significant capital investment in US mills, technology, and biotech to gain new markets and transform industry while keeping a piece of the wood products value chain in small, local, or bioregional industries to sustain rural communities
- Relevant, competitive research that aligns with market opportunities, e.g., the percentage of biomass that can be used in various products and still maintain the quality of product, and methods for quickly moving good ideas out of the lab and into commercial applications
- Incentives for sustainable international trade based on common goals that will lead to sustainable labor, equitable environmental rules, etc., perhaps through coordination with other sustainably managed forest producing nations.

4. *Forest Certification and Green Buildings* – Needs include:

- Increasing adoption and documenting effectiveness of forest management certification systems
- Enhancing the adoption green building certification systems
- Multi-level assessments that build on what exists, such as the Montreal Process, and that can be adapted to apply effectively on both regional and local scales

5. *Carbon Sequestration* – Needs include:

- A carbon accounting system that is effective to support credit trading
- Creating landowner understanding of climate change that motivates those who will be affected to change policy, such as getting “green energy” defined as energy that reduces net green house gas emissions

6. *Forest Bioenergy* – Needs include:

- Economic, environmental, and social life-cycle analysis of alternative fuels, including evaluating role, scalability, source options, site sensitivities, etc.
- Means for moving forest biofuels to become a primary US energy source, including market based incentives necessary to create the marketplace for and major investment in new alternative fuels

7. *Multiple Perspectives in and Societal Support for Resource Management* – Needs include:

- Ways of effectively and accurately determining stakeholders, engaging diverse groups, adapting programs to address cultural needs and uses, valuing new research, etc.
- Methods and incentives, including adequate time, funding, and training, for building capacity within organizations to use collaborative processes
- Technology to help the public better relate to the natural resources field, e.g., a watershed simulator for hand held game devices such as Gameboy

8. *Urban Settings* – Needs include:

- Tools to redesign neighborhoods, bringing together planners, ecologists, economists, county planners, tax maps, etc.
- Programs that develop urban natural settings to connect urbanites with natural resources, e.g. understand how and why it works, engage community, environmental education

9. *Education* – Needs include:

- Revised natural resource higher education curriculum that incorporates emerging and anticipated issues, e.g. urban, cultural diversity, conflict management, social, economic, etc.
- Redesigned continuing education and professional development for natural resource professionals so they are able to deal with contemporary issues, e.g. conflict management, collaboration, communication

10. *Institutional Sustainability* – Needs include:

- New national metrics that refine definitions of sustainability and measures of how it is achieved, such as developing a general welfare index beyond Gross Domestic Product (GDP).
- Information to couple sustainability of natural resources with incurrence of national debt, such that debt is incurred specifically to enhance sustainability

C. Matrix of Attainable Future Elements Correlated to Needs

It is expected that the needs in each area will be met only through a combination of increased understanding of the environmental, social, and economic elements pertaining to each need, together with tools such as technological enhancements, policy revisions, and new funding mechanisms. The following table links the attainable future elements with specific needs. Some needs are repeated because they serve more than one element of the attainable future.

Attainable Future Element	Future Decision Makers' Needs
<p>1. Sustainability Vision: US Forests are a model of sustainable management; the US includes a sustainable environment and economy as central policies.</p>	<ul style="list-style-type: none"> ▪ New national metrics refining the definitions of sustainability and measuring of how it is achieved, such as developing a general welfare index beyond Gross Domestic Product (GDP). ▪ Information on relationships between natural resource sustainability and incurrence of national debt, such that debt can be justified as having been incurred specifically to enhance sustainability
<p>2. Healthy Working Forests Vision: There is a greater understanding of forest management; adaptive and multi-use management are accepted and successful; landscape level planning is common.</p> <p>Endangered and ecologically important forests are protected; there is meaningful progress in forest restoration</p>	<ul style="list-style-type: none"> ▪ Ecosystem management strategies, including affordable incentives and effective marketing approaches, that provide desired human values <i>and</i> sustain ecosystem services and processes ▪ A system for monitoring remote sensing data, including unique landscapes, to reduce impacts. A means of translating available data to users in a useful format and in real-time ▪ Improved forest management and green building certification systems ▪ An understanding of forests at risk and the implications – including costs – of sprawl, development, wildland-urban interface, habitat fragmentation, etc. ▪ Creating landowner understanding of climate change that motivates those to be affected to change policy, such as getting “green energy” defined as energy that reduces net green house gas emissions ▪ Cost assessment tools for easements and other forest conservation mechanisms ▪ Defining within ecological principles the appropriate distribution of disturbance and protection, including the difference between an invasive and a migrating pioneer species ▪ Multi-level assessments building on what exists, such as the Montreal Process, but expanded to regional scale ▪ Reducing restoration costs and increasing markets for longleaf pine and other restoration species and products ▪ Improved forest management and green building certification systems
<p>3. Competitiveness Vision: There is a competitive global industry; the US business climate attracts investment in the forest sector. Ecosystem services have an established, successful market. Rural communities are stronger since they are part of the forest product value chain.</p>	<ul style="list-style-type: none"> ▪ Incentives, including policy and tax changes, that support and promote working forests, allow efficient land use within legal constraints, and encourage participation in land use planning ▪ Incentives for significant capital investment in US mills, technology, and biotech to gain new markets and transform industry while keeping a piece of the wood products value chain in small, local, or bioregional industries to sustain rural communities ▪ Carbon accounting system effective enough to support credit trading ▪ Relevant, competitive research that aligns with market opportunities, e.g., the percentage of biomass that can be used in a product while still maintaining its quality ▪ Methods for quickly moving good ideas out of the lab and into commercial applications ▪ Incentives for sustainable international trade based on common goals leading to sustainable labor, equitable environmental rules, etc. ▪ Ecosystem management strategies, including affordable incentives and effective marketing approaches, that provide desired human values <i>and</i> sustain ecosystem services and processes ▪ Mechanisms to increase the influence of Europe, Canada, and the US as a fiber cartel ▪ Tools to redesign neighborhoods, bringing together planners, ecologists, economists, county planners, tax maps, etc.
<p>4. Public Engagement Vision: Conservation education is thriving—university curriculums are focused on ecosystems and human/environment interactions. Greater public awareness of the multiple values that can be</p>	<ul style="list-style-type: none"> ▪ Programs that develop urban natural settings to connect urbanites with natural resources, helping people understand how ecosystems work and engaging them to act on this new understanding. ▪ Creating landowner understanding of climate change that motivates those who will be affected to change policy. ▪ Revised natural resource higher education curriculum incorporates emerging

<p>7. Biofuels Vision: Biofuels derived from forest products are a significant energy source for the US, contributing to a reduction in greenhouse gas emissions.</p>	<ul style="list-style-type: none"> ▪ Life-cycle analysis – economic, environmental, and social – of alternative fuels, including evaluating scalability, source options, site sensitivities, etc. ▪ Means for moving forest biofuels to become a primary US energy source, including market based incentives necessary to create the marketplace for and major investment in new alternative fuels ▪ Relevant, competitive research that aligns with market opportunities, e.g., the percentage of biomass that can be used in a product while still maintaining its quality, and methods for quickly moving good ideas out of the lab and into commercial applications
<p>6. Leadership Vision: Forestry profession has regained the public’s confidence and works collaboratively with other professionals.</p>	<ul style="list-style-type: none"> ▪ Revised natural resource higher education curriculum that incorporates emerging and anticipated issues, e.g. urban forestry, diverse cultural values, conflict management, social sciences, economics, etc. ▪ Redesigned continuing education and professional development for natural resource professionals so they are able to deal with contemporary issues, e.g. conflict management, multi-stakeholder collaboration, and stakeholder communication
<p>8. Research Vision: Commitment to long term research results from agreement on priorities. Research supports new market development for US forest products.</p>	

III. Remaining Challenges and Next Steps

The results of the Outlook Dialog’s *Decision Makers’ Future Needs Workshop* highlight the challenges ahead. The attainable future described in this report reflects the participants’ broad general consensus. However, participants also acknowledged that the attainable future was a series of interconnected components, all of which were perceived as necessary for that attainable future to be reached. Divergent aspects originally identified in the *likely futures*, based on current trends, were still seen as potential stumbling blocks in reaching the *attainable future*.

Participants emphasized that social and economic issues, more than biological ones, are the primary barriers to reaching the described attainable future for forests and forestry. A key question remains: How can forestry professionals successfully engage the public in meaningful ways to foster the public participation and build the political will needed to bring the desired attainable future to reality?

On March 7-9, 2006, a diverse group of scientists will meet for the second Outlook Dialog workshop, the *Science Responses Workshop*. A group of 25 researchers and managers will examine the decision makers’ needs identified herein and develop science responses to address those future requirements.

Participants in the *Science Responses Workshop* will also consider the outcomes of the January 2006 National Association of University Forest Resources Programs (NAUFRP) summit, “Forestry Research for the 21st Century”. For continuity, participants will include attendees both from the decision makers’ workshop and from the summit.

NCSE will use the results from the second workshop to develop a final report describing the framework of science responses that emerge from the Outlook Dialog. This report will inform the development of a 5 year plan for research conducted by USFS and its current cooperators. It will also provide USFS with a valuable bridge to share a vision of future anticipated information needs with other forestry organizations to simulate new partnerships and wider collaboration.

Appendix

Decision Makers' Needs Workshop List of Participants

<u>Participants</u>	<u>Title</u>	<u>Organization</u>	<u>State</u>
Jim Brown	State Forester (retired)	Jim Brown Consulting Forestry	OR
Debbie Chavez	Research Social Scientist	USDA Forest Service	CA
Don De Hayes	Dean	University of Vermont, School of Forestry	VT
David DeYoe	Member	Ontario Board of Forestry	Canada
Verna Fowler	President	College of the Menominee Nation	WI
Alec Giffen	Director	Maine Forest Service	ME
William Ginn	Director	The Nature Conservancy	ME
Jim Golden	Deputy Regional Forester	USDA Forest Service	OR
Lloyd Irland	Lecturer and Senior Scientist	Yale School of Forestry	ME
Ajit Krishnaswamy	Director	National Network of Forest Practitioners	RI
Steve Daley Laursen	Dean	University of Idaho, College of Natural Resources	ID
Patricia Layton	Chair	Clemson University, Department of Forest Resources	SC
Steve Lovett	Executive Vice President	American Forest & Paper Association	DC
Alan Lucier	Senior Vice President	National Council for Air and Stream Improvement	NC
Katie Lynch	Senior Partner	Institute for Culture and Ecology	OR
Ron Neilsen	Bioclimatologist	USDA Forest Service	OR
Jim Sanders	Forest Supervisor	USDA Forest Service	
Jim Sedell	Director	USFS Pacific Southwest Research Station	CA
Susan Stafford	Dean	University of Minnesota, College of Natural Resources	MN
Ross Whaley	Chairman	Adirondack Park Agency	NY
<u>Observers</u>			
Ann Bartuska	Deputy Chief for R&D	USDA Forest Service	DC
Jim Gooder	Assistant Director	USFS North Central Research Station	MN
<u>Staff</u>			
Chris Bernabo	Outlook Project Leader	Center for Science Solutions, NCSE	DC
Tracy Calizon	Recorder	USDA Forest Service	DC
Jessica Call	Recorder	USDA Forest Service	DC
Michelle Harvey	Facilitator	MautheHarvey & Co.	MD
Aaron Lien	Workshop Coordinator	NCSE	DC
Nancy Walters	Facilitator	USDA Forest Service	NC