

USDA Forest Service Outlook Research Dialog 2008

***“Meeting the Information Needs of the
Changing Forest Sector”***

Survey Report 8.14.08

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NCSE is conducting this project for the USDA Forest Service, R&D.
The Council is a non-profit and non-advocacy organization.

Survey Summary

The goal of the 2008 USFS Outlook Forest Research Dialog is to help stakeholders involved with a wide variety of forest uses, often described as “new” or “non-traditional” to discuss the issues facing them and identify pressing information needs. This report describes the results of interviews with over 40 professionals with a broad array of expertise from academia, government, private industry and NGOs. Survey participants discussed major trends, including current challenges facing the forest community, the ways in which climate change affects stakeholders and information that would be useful for confronting these wide-ranging concerns. They also detailed the many challenges to engaging diverse stakeholders involved with varied forest uses.

The major challenges facing the forest community were clustered into five subcategories: 1) ecosystem services & markets, 2) social & institutional barriers, 3) forest management, 4) keeping forested land as forest, and 5) communication. Managing forests to provide all the social, economic and environmental values important to human well-being emerged as an overarching theme. However, the lack of understanding associated with the value of forests and the benefits they provide to people has led to a lack of public support for forest issues. Additionally, disagreement among the various interests within the forest sector and lack of national leadership make it increasingly difficult to address problems.

In terms of forest management, major issues identified included: forest decline, invasive species, insect and disease outbreaks and wildfire – all issues influenced by climate change. Many participants cited developing concrete adaptation strategies in the face of all of these changes as necessary, but very difficult. They also mentioned fragmentation, parcelization (often associated with inter-generational land transfer) and development pressures on forested lands as major issues to be addressed. Respondents frequently cited the lack of incorporation of the social sciences into research on issues facing forests as inherently problematic. For research generally; relevancy, communication in a usable form and dissemination of results were cited as major roadblocks.

Participants described climate change and its affects on the strategic areas of their organizations as presenting both challenges and opportunities. For some, changing climate was seen as an old issue already incorporated into the web of activity, for others it was an emerging issue beginning to be addressed by their organization. No matter the viewpoint, respondents were aware and actively dealing with climate change in many aspects of their work. When asked to think of information needs useful for confronting the many different challenges, participant responses best fit into seven categories including: 1) education, 2) synthesis & translation, 3) management strategies, 4) monitoring, 5) models & tools, 6) social science & economics, and, 7) policy.

In September 2008 a meeting will be held to allow the summarized findings of this survey to be discussed by a smaller sub-group of survey participants. During this interactive workshop, stakeholders will help prioritize a research and information needs agenda for USFS R&D and the larger community, focused on emerging areas and forest trends.

I. Introduction

The 2008 USFS Outlook Research Dialog is focused on ***“Meeting the Information Needs of the Changing Forest Sector.”*** It is being conducted under the auspices of the National Council for Science and the Environment (NCSE), a non-profit, non-advocacy organization specializing in multi-stakeholder collaboration.

The goal of this year’s Outlook Research Dialog is to help stakeholders involved with a wide variety of forest uses, often described as “new” or “non-traditional” to identify their own, most pressing, information needs. Once these needs are understood, Forest Service Research and Development (USFS R&D) can share a relevant research agenda broadly with the forest community, increase meaningful partnerships to accomplish research goals set forth by its stakeholders, and provide direct assistance filling the knowledge gaps identified.

The following report summarizes the findings of this project’s first stage - the survey process. Over 40 professionals with a broad array of expertise from academia, government, private industry and NGOs were interviewed.

By identifying and engaging a diverse range of stakeholders in the Outlook survey process, valuable lessons were learned about the challenges faced by different sectors and forest uses. The most pressing information needs to address these challenges were also discussed. As the survey process progressed, more nuanced issues were brought to the surface – most notably the use of the words “new” or “non-traditional” in the title of the project. Participants described these words as value-laden terminology, inappropriately characterizing legitimate areas at the forefront of work being done across forest-related disciplines. This important point will continue to inform the 2008 USFS Outlook Research Dialog as it progresses into its second stage.

The survey results synthesized in this report will serve as a starting point for the *“Information Needs Workshop”* to be held September 17-18, 2008. A subset of the survey respondents will participate in developing a science and information agenda, including issues encompassed by categories such as climate change, ecosystem services, non-timber forest products, community-based natural resource management and various land ownership/management regimes. Stakeholders from a wide variety of disciplines will be included – ranging from the conventional wood products sector and far beyond. The goal is to expand the circle of traditional participants to better represent the many faces of the Forest Service constituency. The agency recognizes the value of including stakeholders from many different areas and seeks to ensure their ideas are heard and incorporated into the development of a relevant research agenda that reflects their needs.

For more information on the USDA Forest Service Outlook Research Dialog or to read previous reports, please visit <http://www.ncseonline.org/Outlook/>.

From late May through early July 2008, the NCSE project team interviewed 43 individuals with experience in both traditional and non-traditional uses of forest systems. Included in this group were professionals affiliated with the USDA Forest Service, other federal and state governments, conservation organizations, private industry, and academia. Figure 1 illustrates the breakdown of participants’ affiliations by sector.

In addition to maintaining a roughly equal distribution across sectors, the project team also attempted to engage participants working across a

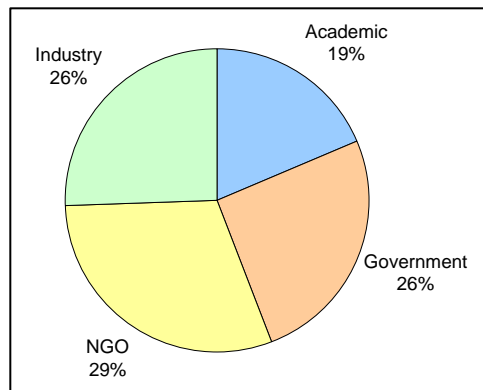


Figure 1: Participant Affiliations by Sector. Interview participants included 8 academics, 11 government employees (federal and state), 13 NGO employees, and 11 private industry employees.

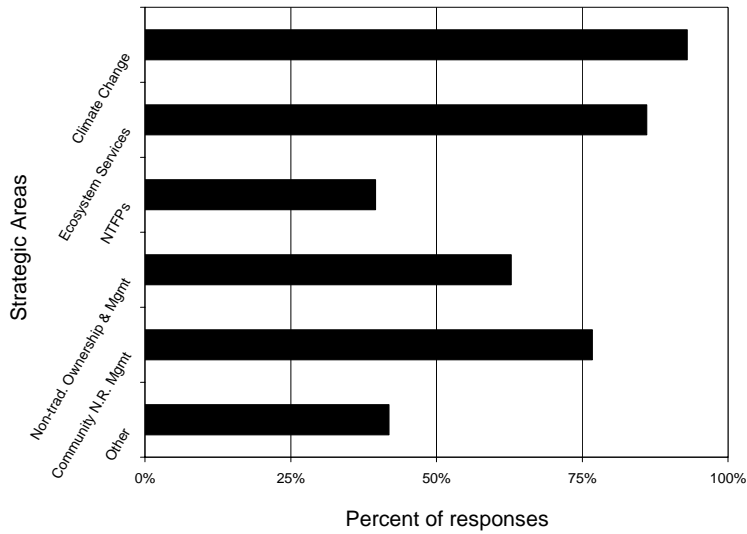


Figure 2: Participant Responses by Strategic Area. From top to bottom the categories are: Climate Change, Ecosystem Services, Non-Timber Forest Products, Non-traditional Land Ownership & Management, Community-based Natural Resource Management, and Other. (Responses in the 'Other' category are listed in Table 1, below.)

range of categories, originally referred to as “new and non-traditional forest uses” including climate change, ecosystem services, non-timber forest products (NTFPs), various land ownership & management regimes, and community-based natural resource management practices. These categories were intended to encompass the many emerging trends within the forest sector and were not meant to be mutually exclusive. Figure 2 shows the percent of survey participants who identified themselves as working directly in each of these strategic areas.

Participants were first given a short questionnaire (Appendix 2) and were subsequently interviewed to discuss their survey responses in greater detail. The interview results were compiled and analyzed; the results of

this analysis are provided in this report. To ensure participants spoke freely during the interview, no individual’s opinions are specifically identified in this report. The report represents an analysis and presentation of the results in summary without attribution.

The report begins by presenting the subcategories within the emerging strategic areas (Figure 2) interview participants are working in. Many participants (18) indicated that they are working in areas they felt were not described by the strategic areas and this information is described as “Other” (Table 1). A narrative analysis of the major trends follows, including current challenges facing the forest community, a discussion of how climate change affects the stakeholders surveyed and information that would be useful for confronting these challenges. A summary of challenges to stakeholder engagement and benefits of USFS-stakeholder dialogs are also presented. Finally, a conclusion is provided, pulling together major findings to prepare for a more in-depth meeting on this topic. In the appendix, additional background information on participant responses is provided, along with the survey itself and a list of survey participants.

Table 1: ‘Other’ Strategic Areas. *Emerging issues within the forestry community not included in the strategic areas identified in Figure 2. (These areas are listed in no particular order; similar responses have been combined into single points)*

Value-added forest products
Issues of forest health (fire, insects, invasive species) and the relationship to human health
Environmental justice
Sustainability (economic, ecological, social)
Collaborative forest planning
Certification standards
Timber management as integrated in Strategic Areas identified in Figure 2
Non-industrial private land ownership
Habitat conservation
Preservation of subsistence cultures

II. Major Themes

Within the three headings below, a synopsis of the major themes of the survey is provided.

The first focuses on the major themes, “Issues and Challenges” that participants deemed most immediate in their area of expertise within the forest sector. Upon grouping the major challenges discussed, similar responses were clustered into five subcategories: ecosystem services & markets, social & institutional barriers, forest management, keeping forested land as forest, and communication. The order chosen in the report reflects a hierarchy displayed in the raw responses, placing the subcategory with the most responses grouped under it first and the one with the least amount of survey responses last (see Appendix 1 for more background on participant responses by sector and topic).

Under the next heading, a summary on “Dealing with Climate Change” is presented. Participants in the survey were asked to describe how climate change affects the strategic areas their organization is involved with. Their responses are grouped into five subcategories describing climate change as: an old issue, an emerging issue, a unifying issue, an issue that exacerbates other problems and as an issue presenting both challenges & opportunities.

The section on major themes closes with a discussion of “Research and Information Needs” most suitable to address the challenges outlined. These are grouped into seven categories most relevant to the responses identified by the survey participants and include: education, synthesis & translation, management strategies, monitoring, models & tools, social science & economics; and policy.

a. Issues and Challenges

When asked to list the major issues, needs or challenges facing the emerging issue areas identified in survey, respondents had a variety of answers. These responses are organized into five categories below:

1. Ecosystem Services and Markets: Managing forests to provide all the social, economic and environmental values desired by the public emerged as an overarching theme of the survey responses. Climate change was emphasized as an exacerbating factor affecting biodiversity, air quality and water quality, quantity & availability. When discussing these issues, participants identified the lack of focal points to synergistically and holistically address ecosystem services and climate change, recognition of the values of forest systems, and the ability to uniformly identify and discuss ecosystem services, as major challenges.

Stemming from these concerns, market considerations were frequently mentioned. For ecosystem services generally, participants described the lack of credible, transparent, accessible markets with clear regulatory rules as a major roadblock. Many survey respondents focused solely on carbon markets, citing the major issue as the lack of consistency between carbon market systems. Without uniform standards or a national cap and trade system, it is difficult for landowners and others to participate – the additional transaction costs can also be prohibitive. In addition to these problems, lack of agreement within the forest community about how to account for forest carbon, how to value carbon stored in wood products, and how to bridge the nexus of forestry, energy and carbon sequestration continues to bog down efforts to make forest carbon sequestration and trading commercially viable.

2. Social and Institutional Barriers: Various social and institutional barriers were mentioned by survey respondents as major challenges to their work across all strategic areas.

Respondents frequently cited the lack of incorporation of the social sciences into research on issues facing forests as inherently problematic. Challenges such as disagreement among the various interests within the forest sector and lack of national leadership emerged as common

concerns in these discussions. Many participants also mentioned “stagnant thinking” geared toward the bottom line, where uses other than timber production are seen as constraints. Lack of federal investment and funding for non-timber forest uses, synthesis of existing information, and research partnerships were described as other major problems.

From a rural sustainability standpoint, the major challenge to retaining vibrant forest-based communities was identified as maintaining U.S. competitiveness in global markets. As mills close, jobs go overseas and domestic support for wood products infrastructure diminishes, life becomes increasingly difficult for people in rural communities. A few survey participants also mentioned aging workforce issues and subsequent loss of expertise as major challenges to the field.

Another interesting challenge mentioned was the effects of changing demographics and shifting societal values. Predicting who will gain access under these new conditions and how forest resources will be managed becomes more difficult. In turn, community capacity building poses yet another challenge as diverse interests vie for the same resources.

3. Forest Management: Major issues for forest management discussed in the surveys included: forest decline, invasive species, insect and disease outbreaks and wildfire – all issues influenced by climate change. Many participants cited developing concrete adaptation strategies in the face of all of these challenges as necessary, but very difficult.

Others discussed issues of biomass sustainability for direct heat and electricity, as well as for development of biofuels (i.e. cellulosic ethanol or biobutanol). Major concerns in this arena related to establishing viable long-term sources (especially on state and federal lands), ways to incorporate air quality regulations into planning efforts, and how to obtain tax credits for private landowners in return for providing this renewable resource. Discussions on biofuel development focused on challenges to making this industry economically feasible. *(Representatives from pilot biofuel plants in the U.S. and from related chemical industries were invited to participate in this survey, however none were available. The concerns about biofuel development were expressed by participants familiar with the technology from other closely related fields or academia).*

Concern about competition for forest resources among interests (energy, pulp, paper, timber, and non-timber forest products) surfaced multiple times as a major area of concern. For NTFPs in particular, the major challenge expressed was a need for integrated information on property rights, access, and sustainability.

4. Keeping Forested Land as Forest: Participants mentioned preventing fragmentation, parcelization (often associated with intergenerational land transfer) and development pressures on forested lands as major challenges. For non-industrial private landowners, these pressures are accompanied by barriers to developing incentives to keep forested land as forest. Lack of markets for ecosystem services, and difficulty in making value-added products produce a return pose major hurdles. Property taxes that vary from state to state and numerous other tax structures and disincentives can lead to financial hardships that often make it more economically feasible for landowners to sell their forested property.

In larger landholdings owned by TIMOs and REITs other issues arise. Uncertainty and concern about the shortened time horizons associated with these entities was expressed throughout much of the forest community surveyed. Because the future of these properties remains uncertain, planning efforts on the landscape scale are extremely challenging. At the same time, lack of public funds create challenges to establishing conservation easements (both working easements and others) also aimed at keeping the remaining forest land in the U.S. intact.

5. Communication: Generally speaking, the lack of understanding associated with the value of forests and the benefits they provide to people (especially those in urban, exurban and suburban areas) leads to a lack of public support for forest issues and poses major challenges.

When discussing research: relevancy, communication in a usable form and dissemination of results were cited as major challenges. The stakeholders surveyed felt it was unclear where to get reliable information. Land managers with scientific questions expressed dissatisfaction with the lack of research aligned with their information needs. Many respondents also mentioned the lack of user-friendly summaries, particularly on topics of climate change and adaptation strategies.

b. Dealing with Climate Change

Survey participants were asked how climate change affects the strategic areas their organization is involved with. Their responses were grouped in the five categories discussed below:

1. Old issue: A number of respondents noted that climate change is not a new strategic area for their organization, and because it affects the entire forest system, it also affects all organizational program areas. It was noted, however, that the recent increase in public interest and awareness, has resulted in more funding availability for research focused explicitly on climate change.

2. Emerging issue: Many more respondents identified climate change as a new or emerging issue that is receiving an increased amount of attention within their organization. The following are examples of climate-related issues cited by participants as new focus areas:

- effects of climate change policy initiatives on domestic markets for forest products;
- increased competition for wood products and regulation within the supply chain due to the push for renewable energy sources associated with climate change;
- impacts of climate change on social welfare, particularly in tribal and rural communities;
- carbon sequestration and economic benefits of carbon markets as an incentive for landowners to keep forested land as forest; and
- challenges to the traditional method of nature conservation through management and designation of protected areas.

3. Unifying issue: Many survey participants view climate change as a unifying issue that affects and drives everything their organization works on. Climate change impacts will change current knowledge about forests, and forest management will need to become more fluid. Numerous respondents also noted that in addition to forest management, climate change will also affect business operations (e.g., travel, energy use) in ways that may not be readily apparent.

4. Exacerbates other problems: A number of respondents view climate change as something that will increase existing, and add new, stressors to forest systems. In terms of forest management, climate change complicates the control of insects, disease, invasive species, fire severity, and shifts in species ranges. These stressors will likely have negative impacts on wildlife habitat, water and air quality, and human health.

5. Challenges and Opportunities: Past conservation strategies have assumed fairly static ecosystems, but forest management strategies and policies need to become dynamic as ecosystems are disturbed by climate change. Participants expressed a need for strategies to manage forests in the face of uncertainty. Previous research has focused on mitigation methods such as carbon sequestration, but there is an increasing demand for adaptation strategies. Climate change-exacerbated stressors present new challenges to forest managers. Finally, participants noted that policymakers will need to incorporate more social science information into their decision-making.

Many participants viewed climate change as a challenge to maintaining forest health and to current management strategies. However, a significant number viewed climate change as a

chance to increase public awareness of the value of forests and take advantage of climate-related economic opportunities. Examples of opportunities cited by participants include:

- increased public awareness of environmental issues will aid the forestry community in educating the public about the value of forests;
- grassroots and volunteer groups, such as those involved in community forestry projects, will be able to take advantage of the public interest in climate change issues;
- increased demand for renewable fuel sources such as woody biomass and carbon sequestration will provide income for forest landowners;
- greater potential for economic benefits for rural communities; and
- greater public support for walk-able cities and urban forestry.

c. Research and Information Needs

Survey participants identified several types of information that would be valuable in addressing the issues, needs, and challenges discussed above. Responses were grouped in the seven categories discussed below:

1. Education: Communicating the value of forests to the general public and to policymakers in order to increase their support of the forest community was mentioned by a number of participants. Survey respondents expressed a need for education tools and information on the need to sustainably manage U.S. forests, keep forested land as forest, and the appropriate economic response to current deforestation rates. It was emphasized that such information must be disseminated in a form that is easy for the public to understand.

2. Synthesis and Translation: Many survey participants expressed the view that much of the needed information already exists, however there is little to no integration of information from different research areas, or it is available in forms that are not useful for forest management. Respondents noted that the types of information that will be needed for sustainable forest management will change over time, but even so, a robust system for the timely delivery of information must be implemented. Information needs within this category were divided into the following subcategories: synthesis and summary work, integration and filtering, and information in a usable format.

Synthesis and summary work

Respondents stated a need for the synthesis of existing science in order to better understand how it can be applied to forest management. Many respondents stated that this need is particularly true in the area of climate change, which impacts virtually all areas of forestry research and forest management. For example, land managers need usable summaries of research on forest genetics to better understand the adaptability of existing forests, and the potential for use of trees with broader ranges.

Integration and filtering

The need for integration of information across studies, institutions, and disciplines (e.g., ecological, social, and economic) was expressed by survey participants. They also noted the need to filter existing information to determine which data are useful and applicable to forests. Again, this issue was frequently mentioned within the context of climate change.

Information in a usable form

Survey participants expressed a desire for information that is both timely and relevant to the issues faced by land managers. Applied research priorities should be driven by the information needs of policymakers and managers, and should relate to real conditions in real communities. Specific information needs noted by respondents included: strategies for climate change adaptation and mitigation, successful and efficient use of adaptive management, biodiversity and wildspace conservation at the landscape-scale, trends in

forest ownership and forest land conversion rates, available biomass and biofuel technologies and the sustainability of biomass harvesting, and epidemiological studies of the air quality impacts of wood fuel heating.

3. Management strategies: Respondents identified a need for experiments at the landscape-scale on the impacts of different management strategies. The majority of management information needs fell into the categories of climate change impacts and adaptation, carbon sequestration, and biomass and biofuels production. In terms of climate change, survey participants stated that managers need practical information for dealing with the impacts of climate change. They also stated a need for finer-scale climate models that incorporate different forest management strategies.

There was a strong desire for information to aid managers in developing adaptation strategies. In the area of carbon sequestration, participants identified the effects of uneven-aged management and carbon storage in alternative products as major information needs. Growing interest in biomass and biofuel production has resulted in concerns about how best to manage forests for sustainable production including information on nutrient cycling and the effects of biomass removal. Respondents also expressed a need to create a biomass inventory for each forest type in the U.S., including data on availability and accessibility.

Other management information needs expressed by survey participants included the effects of management on ecosystem services, strategies for dealing with insects, disease, and invasive species, information on smart growth and land-use planning to avoid fragmentation and parcelization, and methods for quickly growing high quality plantations to generate adequate revenue to avoid land conversion.

4. Monitoring: Survey participants discussed the need for quality monitoring data to better understand emerging issues such as ecosystem services and climate change impacts. There is also a need for data on post-fire ecosystem conversion and carbon inventories, as well as life-cycle carbon analysis.

5. Models and tools: Needs noted by participants in this category included better tools for measuring biomass carbon (e.g., remote sensing), variations in carbon fluxes, and the effects of natural disasters on carbon inventories. Respondents also mentioned a need for tools to deal with issues of forest health, including outbreaks of insects and disease. Climate change issues were a major concern in terms of the need for models. Specific issues included a need for local- and regional-scale projections as well as a climate change toolkit with models for managers and web-based tools for private landowners.

6. Social science and economics: An overarching theme of participant comments was the need for more social science and economic research. Information needs ranged from the economic value of forests and ecosystem services to the public health value of green space and urban forests. Specific economic information needs include consistent terminology to define ecosystem services, strategies for developing real markets for ecosystem services, and plans to make U.S. biomass production globally competitive. Specific social science information needs include valuation of social and public benefits of forested land, the positive and negative externalities of private forest land ownership, the impacts of climate change on rural communities, and the effects of community forestry projects on how the public values forests.

7. Policy: In the area of forest policy, most survey respondents stated a need for information to convince policymakers that forest research should be funded. There is also a need for information to educate policymakers about the competition for limited forest resources (e.g., energy, pulp and paper, ecosystem services) and the importance of environmental protections for lands managed for intensive biofuel production. Finally, survey participants expressed a need for agreed-upon climate standards and protocols as well as enforcement mechanisms.

III. Stakeholder Engagement

This section of the report focuses on the challenges to stakeholder engagement and the benefits of USFS-stakeholder dialogs. Benefits from engaging in research on the emerging issues discussed in this report are described in terms of both stakeholder and Forest Service gains.

a. Challenges

Survey respondents identified the following major challenges to successfully engaging stakeholders involved with new or non-traditional uses of the forest:

1. Difficulty identifying and engaging new stakeholders

- Stakeholders are ready to participate, but want to see the results of their participation. Working with the Forest Service can be frustrating to stakeholders because so many resources are devoted to internal business rather than partnerships.
- Stakeholders are skeptical of partnering with the Forest Service because resources for collaborative, participatory research have been insufficient and inconsistent in the past.
- Because the forestry community is constantly evolving, it is difficult to know who to include in dialogs.
- Understanding of emerging industries, such as forest-based biofuels is lacking. Likewise, emerging areas such as TIMOs and REITs, are largely uninformed about the benefits provided by USFS R&D. The Forest Service must strive to maintain relevancy to overcome these obstacles.
- Timber industry groups and environmental conservation groups already have working relationships with the Forest Service and to some extent, each other. An effort to engage new groups with new solutions is necessary, particularly for groups such as community forestry volunteers, who don't always see the benefits of engaging with USFS.

2. Creation of a unifying vision is hindered by the diversity of stakeholders in new or non-traditional areas

- The diverse nature of emerging forest issues and the groups that work on these issues makes it difficult to identify a single, cross-cutting issue and agree on an agenda.
- The challenge exists in convincing stakeholders they can benefit from working with groups with different priorities on issues other than their own.
- Different social cultures and interests across stakeholder groups make communication difficult.
- The interests of stakeholder groups, even those working on emerging issues, can still be entrenched in the status quo.
- Around the issue of climate change, there is a great diversity of opinions. Some stakeholders deny that climate change is occurring, while others adopt a fatalistic view and decide nothing can be done. The public doesn't always trust information provided by industry and government, and climate change is an extremely complicated issue not easily addressed by media or quick communication devices.
- For ecosystem markets, stakeholder engagement will remain challenging if a standardized system is not developed.

3. The traditional forestry paradigm does not work for new stakeholders or emerging issues

- Calling these uses “new and non-traditional” when many have been around for decades or more, raises doubts about how seriously stakeholders involved with these uses are taken and makes them less willing to participate in a dialog.
- Dialogs with the Forest Service tend to involve the same players in the same, traditional fights. New people with new perspectives should be included in order to find solutions and maintain strong forest leadership.
- The Forest Service has a reputation for poor forest management, resulting in skepticism among stakeholders in both the public and private sectors.
- Forest management is still seen as “let nature take its course,” a strategy which will not be effective in dealing with climate change. Local land managers lack a thorough understanding of climate change impacts, making it hard to engage groups working on climate-related issues, particularly in rural areas.
- There needs to be a shift from national-scale, short-term strategies to more localized approaches with long-term solutions in mind.

4. The general public do not see themselves as forestry stakeholders

- The public doesn't understand the value of trees or that forestry issues are important to their daily lives.
- The forestry community has failed to show people who don't live near a forest what their stake in the forest is.
- In terms of ecosystem markets, it is difficult to convince people to pay for the benefits provided by forests that they receive and expect for free.
- There is no neutral convener and poorly constructed social processes result in stakeholder fatigue.
- Landowners need to be educated about the financial benefits of carbon markets.
- In some cases, there is public interest in becoming engaged, but the forestry community lacks the resources to effectively communicate with, and engage such individuals.

b. Benefits to Stakeholders

Through participation in a dialog with the US Forest Service Research and Development, stakeholders hope to gain in many ways. Their responses are summarized below:

Note: Forest Service employees who participated in this survey were given the option to omit this question or to provide input from the point of view of stakeholders in their area of expertise.

1. Useful information and tools

- Easy access to, or better dissemination of, summaries, reports, models and technical assistance (a bridge between scientific peer reviewed literature and managers on the ground);
- Increased focus on high quality, relevant social science research focused on real, current problems facing the USFS and its community partners;
- Climate change information that incorporates other issues (i.e. biomass, forest health, invasive species, insects, disease and catastrophic fire);
- Tools for carbon measurement on smaller scales (i.e. single property);

- Access to real time data, dialogs and programs on partnerships for community energy/power strategies related to woody biomass; and
- Examples or suggestions for effective climate change adaptation strategies for forests throughout the U.S.

2. Meaningful input and results of participation

- A common vision for the forest community on how to collectively accomplish key research priorities;
- Clearly defined, desired outcomes of the dialog;
- Reports, research priorities, and institutional changes that show stakeholder ideas were taken into consideration and also implemented;
- A research focus at USFS influenced by and relevant to all of their stakeholders;
- Development of research partnerships among the Forest Service and other organizations to work on emerging issues;
- Acknowledgment that social science issues are important demonstrated through research and extension staff positions within the Forest Service across the U.S.; and
- Follow-through with pilot projects on a large scale (i.e. certification).

3. Better understanding of USFS R&D infrastructure

- Understanding of current research priorities at USFS, how they are set, and how they line up with the budget; and
- Ultimately would like USFS to gain specific appropriations and support for R&D.

4. Respect for areas considered “new or non-traditional”

- Increased focus and generation of a cohesive, comprehensive research plan that incorporates ways to address all of the issue areas listed in the survey;
- Commitment to, and understanding of, the social components/human dimensions of these forest uses and challenges;
- Continued engagement of new people and ideas - and new solutions;
- Institutional structure that allows stakeholders to work collaboratively to develop meaningful research priorities; and
- Realization by USFS that the most important research questions come from the stakeholders involved with these issues.

c. Benefits to Forest Service

By engaging in research on these issues, the Forest Service can hope to gain by building a stronger constituency and regaining relevancy in the eyes of stakeholders and the public. These ideas, as expressed by survey respondents, are outlined in greater detail below:

- To survive scientifically, politically, economically, and socially the Forest Service needs to move in the direction of the emerging issues discussed within this survey. These are the issues of the future and developing a research program focusing on these areas will keep the agency relevant.

- By engaging new stakeholders, USFS will build a broader base of support, which will in turn aid them in keeping forested land as forest.
- The public image of the Forest Service could improve by working on these issues.
- USFS R&D will be a better leader in the US and globally on these issues.
- Could potentially increase funding from Congress by demonstrating and articulating relevancy to a broad public in so many ways.
- Could positively impact USFS on the ground management and the budget.
- Could greatly influence what happens on private lands, by providing quality research and sound advice.
- Could help infuse new ideas and thinking into staff's work.
- Foster more meaningful research partnerships and the subsequent sharing of dollars could help funds go farther.
- Will diversify the agency's research portfolio, helping to take public focus off strict timber production and perceived negative stigmas.

IV. Conclusion

Throughout the survey process it became apparent that climate change and its associated subheadings may be the best choice for a crosscutting issue relating the strategic areas addressed in this survey. As evidenced throughout this report, issues of climate change and the need for adaptation strategies surfaced in almost every section – showing the importance of these issues to stakeholders. Equally important is the need to incorporate the social sciences or human dimensions of natural resources into research, particularly on public and economic values of forests.

Survey participants felt that the Forest Service has much to gain by focusing on these strategic areas as priorities for research and development. USFS R&D benefits from dialogs such as “Outlook” by continuing its evolution and remaining relevant to its stakeholders. The follow-on meeting in September 2008 will allow the summarized findings of this survey to be discussed by a smaller sub-group of survey participants. In this interactive workshop, stakeholders will help prioritize a research and information needs agenda for USFS R&D and the larger community, focused on emerging areas and forest trends.

Appendix

1. Sector Responses by Strategic Areas

Participants were asked to identify the areas that they and/or their organization are currently working in within each major emerging issue discussed in the report above. As with the issue areas themselves, the subcategories were not meant to be mutually exclusive. Figure 3 illustrates the number of participants who indicated they are working in the major strategic areas, which were divided into multiple subcategories. Participants were not restricted from

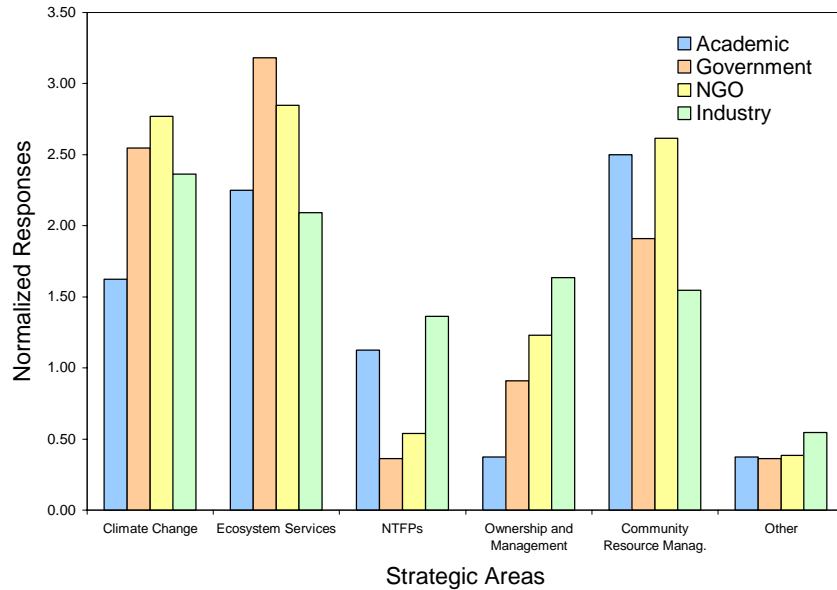


Figure 3: Participant Affiliations by Strategic Area (including multiple subcategory responses) From left to right, the categories are Climate Change, Ecosystem Services, Non-Timber Forest Products, Non-traditional Land Ownership & Management, Community-based Natural Resource Management; and Other (see Table 1).

choosing multiple subcategories within a given strategic area, therefore the total number of responses for each strategic area was greater than the number of survey participants. Because Figure 3 includes responses for multiple sub-categories (unlike Figure 2), this led to the fraction of responses being greater than 1 in many of the strategic areas after the results were normalized to the number of participants within each respective sector.

Survey participants most commonly identified our categories of ecosystem services, climate change, and community-based natural resource management as the strategic areas they and their organizations are currently focusing on. Still on the radar, but less prominent, were non-traditional land ownership & management, non-timber forest products, and other (see Table 1). Many participants mentioned that the nature of their position requires them to work on a number of different projects, thus preventing them from specializing in any single forest issue. As a result, issues that require specialized knowledge, such as non-timber forest products, receive a decreasing amount of attention. The subcategories within each strategic area are discussed in greater detail below (Figures 4-8).

A. Climate Change

Subcategories within the strategic area of climate change included carbon sequestration, carbon trading systems, biofuels (including cellulosic ethanol, biobutanol, and related technologies), adaptation/ resilience, and other (Figure 4). Participants from private industry reported that the majority of their focus is on carbon sequestration and biofuels, while the objectives of the academic sector are roughly equally distributed across subcategories. Interest in carbon trading

systems is nearly equally distributed across sectors, and adaptation/resilience issues receive much more interest from NGOs than from Industry.

Participants identified the following climate change-related issues as other areas they are working on:

- roles of rural communities in climate change adaptation and mitigation;
- social justice issues;
- best management practices for carbon sequestration, mitigation, and adaptation strategies;
- sustainable forest policy and incorporating forests and social implications into climate policy decisions;
- urban sustainability issues; and
- greenhouse gas emissions reductions through use of wood pellet boilers.

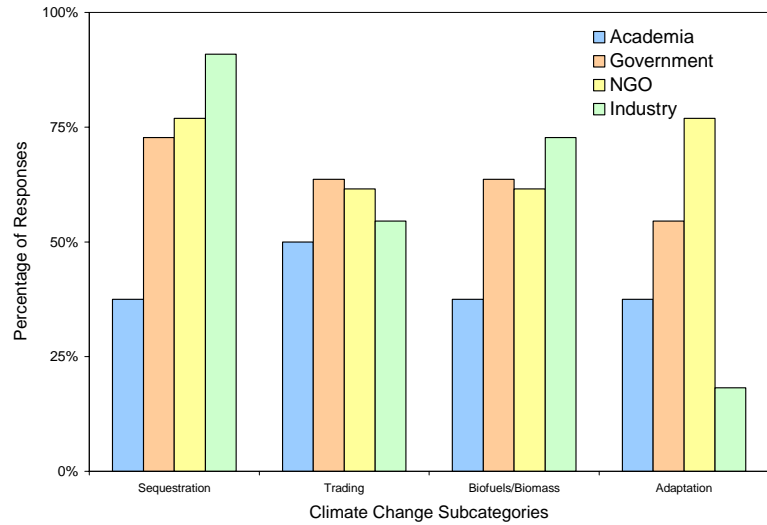


Figure 4: Climate Change subcategories From left to right: Carbon Sequestration, Carbon Trading Systems, Biofuel (and related technology), and Adaptation/Resilience. To account for the unequal distribution of participants between sectors, the number of responses in each Strategic Area has been normalized by the number of participants in each sector, respectively.

B. Ecosystem Services

Ecosystem services were divided into six subcategories: water resources, air quality, biodiversity, ecotourism/recreation, ecosystem markets, and other (Figure 5). Participant responses indicated that water resources, ecosystem markets, and biodiversity are currently receiving the most attention within the forestry community.

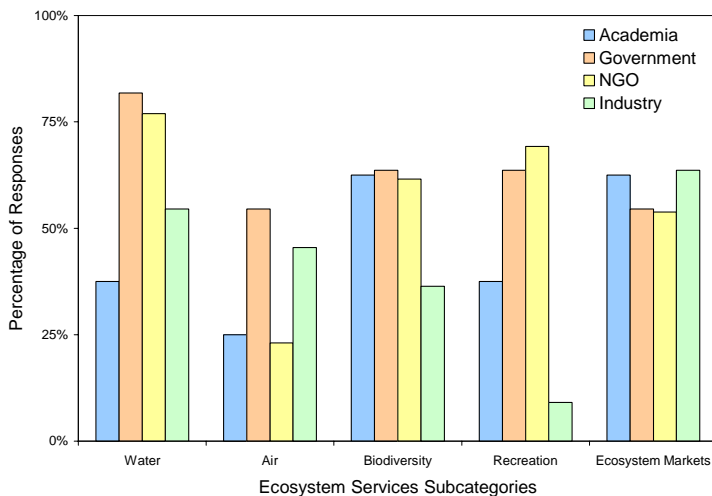


Figure 5: Ecosystem Services subcategories From left to right: Water Resources, Air Quality, Biodiversity, Ecotourism/Recreation, and Ecosystem Markets. To account for the unequal distribution of participants between sectors, the number of responses in each Strategic Area has been normalized by the number of participants in each sector, respectively.

Other notable features of the survey results are that government and industry participants are more involved in air quality issues than academics and NGOs, while there is virtually no industry interest in ecotourism & recreation issues.

The following areas were identified as other issues within ecosystem services:

- habitat restoration;
- forest productivity;
- urban ecosystem services;
- economic benefits of trees to communities;

- certification systems (i.e., FSC, SFI, and American Tree Farm); and
- market mechanisms for reinvestment in rural landscapes and communities.

C. Non-Timber Forest Products (NTFPs)

The subcategories within non-timber forest products included specialty wood products, food items & edibles, floral greens, medicinal & dietary supplements, and other. NTFPs are dominated by academics and industry, while there seems to be little interest in NTFPs among government and NGOs. Based on our participants' responses, specialty wood products and food items & edibles are currently receiving the greatest amount of attention. It was also noted by multiple participants that wood biomass energy (firewood, wood pellets, etc.) should be classified as an NTFP and not be included in the biofuels subcategory of climate change.

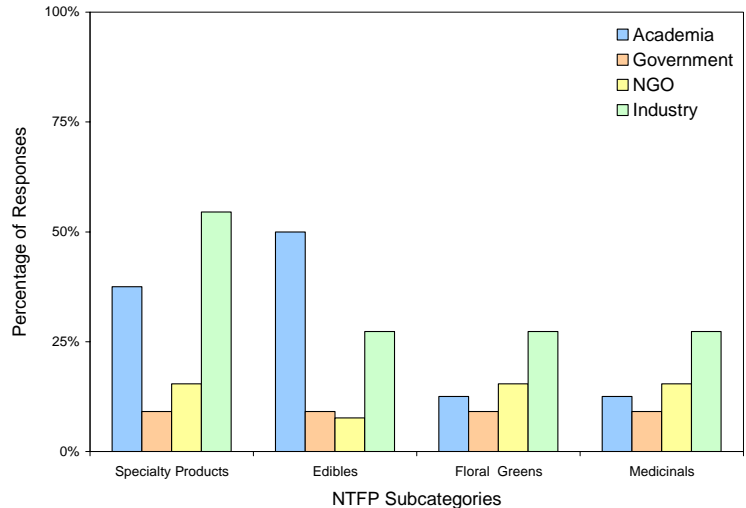


Figure 6: Non-timber Forest Products subcategories From left to right: Specialty Wood Products, Food Items/Edibles, Floral Greens, and Medicinal/Dietary Supplements. To account for the unequal distribution of participants between sectors, the number of responses in each Strategic Area has been normalized by the number of participants in each sector, respectively.

Other NTFP issues identified by survey participants included:

- Christmas trees;
- best management practices for NTFP production;
- certification issues surrounding NTFP production; and
- cultural, traditional and subsistence use of forests.

D. Non-traditional Land Ownership & Management

The subcategories included within the strategic area of non-traditional land ownership were timber investment management organizations (TIMOs), real estate investment trusts (REITs), open space preservation/conservation easements, and other (Figure 7). This strategic area is dominated by industry and NGOs, with NGOs focusing most of their attentions on conservation easements. None of the academics we surveyed were involved with REITs, and in general, there is more focus on TIMOs than REITs. Very few participants focused on both TIMOs and REITs as a combined effort.

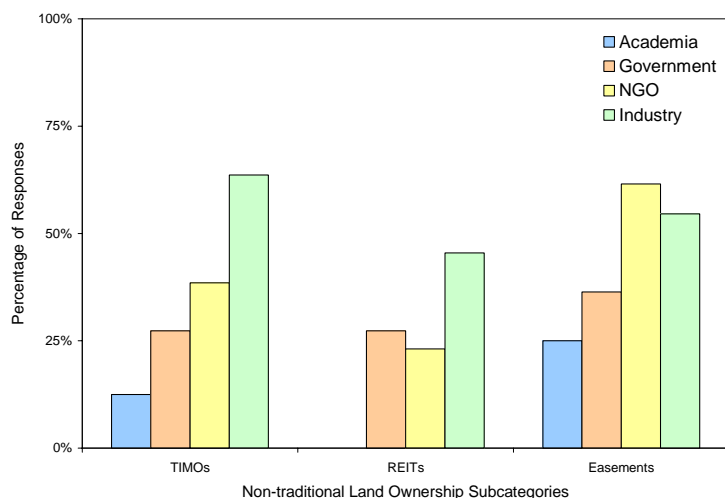


Figure 7: Non-traditional Land Ownership subcategories From left to right: Timber Investment Management Organizations (TIMOs), Real Estate Investment Trusts (REITs), and Open Space Preservation/Conservation Easements. To account for the unequal distribution of participants between sectors, the number of responses in each Strategic Area has been normalized by the number of participants in each sector, respectively.

Other projects within non-traditional land ownership included:

- low income forest land ownership through community-based initiatives;
- social contracts between owners and users;
- sustainable finance as a way to encourage private sector investment in rural communities;
- obstacles to keeping forested land as forest (e.g., forest fragmentation and parcelization, intergenerational transfer of land ownership and increased development pressures);
- need for single, user-friendly system to manage TIMOs, REITs, and easements that engage stakeholders from all sectors; and
- tribal land ownership.

E. Community-based Natural Resource Management

Community-based natural resource management was divided into the following subcategories: urban forestry, community forestry, land-use planning, rural sustainability, and other (Figure 8). Rural sustainability and community forestry receive the most attention across sectors. As a whole, this strategic area receives more attention from academics and NGOs, however there was significant industry interest in issues of rural sustainability, which is likely related to workforce issues.

Participants identified the following issues as areas they are working on within community-based natural resource management:

- stakeholder analysis;
- role of wood-based energy in community development; and
- stewardship contracting, a new statutory authority granted to USFS and the Bureau of Land Management (BLM) that engages community organizations in local-level, multi-party monitoring.

F. Other

Many participants (18) indicated that they are working in areas they felt were not described by the strategic areas listed above. These responses were compiled and grouped into similar or related areas (Table 1).

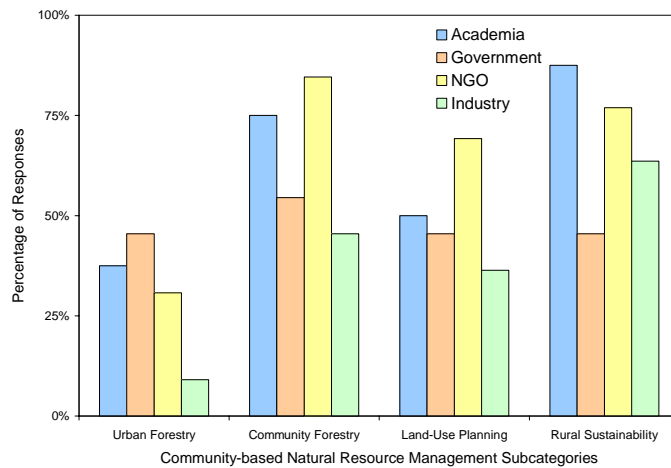


Figure 8: Community-based Natural Resource Management subcategories From left to right: Urban Forestry, Community Forestry, Land-use Planning, and Rural Sustainability. To account for the unequal distribution of participants between sectors, the number of responses in each Strategic Area has been normalized by the number of participants in each sector, respectively.

2. Survey Questionnaire

USDA Forest Service Outlook Research Dialog 2008 The Changing Forest Industry: "New, Non-traditional Uses"

Outlook 2008 is focusing on the changing forest industry and associated strategic areas related to new or "non-traditional" uses of forest systems. The project will include both traditional and non-traditional stakeholders to determine information needs and commonalities among the broad array of forest uses.

This interview is the first step in the process and we appreciate your participation.

Directions: Please succinctly note your responses to prepare for the phone interview. Thank you!

Name: _____ **Position:** _____
Organization/Institution: _____

1. How would you classify your organization?

Government (Federal, State, Local) ___
Non-governmental Organization (NGO) ___
Private Industry ___
Academic ___
Other ___

2. What are the primary activities your organization is involved with?

3. Which of the following strategic areas of the forest industry is your organization currently involved with or working on?

*Non-traditional = sectors outside conventional wood products industry (timber, pulp, paper), etc.
**These categories are not necessarily mutually exclusive

a. Climate Change

Carbon Sequestration ___
Carbon Trading Systems ___
Biofuels (cellulosic ethanol, biobutanol); related technology ___
Adaptation/Resilience ___
Other _____

b. Ecosystem Services

Water Resources ___
Air Quality ___
Biodiversity ___
Ecotourism/Recreation ___
Ecosystem Markets ___
Other _____

c. Non-timber forest products (NTFPs)

Specialty Wood Products ___
Food Items/Edibles ___
Floral Greens ___
Medicinal/Dietary Supplements ___

Other _____

d. Non-Traditional Land Ownership/Management

Timber Investment Management Organizations (TIMOs) ____

Real Estate Investment Trusts (REITs) ____

Open Space Preservation/Conservation Easements ____

Other _____

e. Community Based Natural Resource Management

Urban Forestry ____

Community Forestry ____

Land-Use Planning ____

Rural Sustainability ____

Other _____

f. Other

4. In your opinion, who are the major players (organizations, businesses, individuals, etc.) in the areas you identified above?

5. What are the top three major issues, needs or challenges facing the areas you identified in question 3?

6. What types of information would be most valuable to address the issues, needs or challenges you identified?

7. How do you think climate change affects the strategic areas your organization is involved with?

8. What are the major challenges you see to successfully engaging stakeholders involved with new or non-traditional uses?

9. As a Forest Service R&D stakeholder, what would you like to gain from a dialog with the Forest Service?

10. How can the Forest Service benefit from engaging in research on non-traditional uses of the forest?

Additional Comments:

3. Survey Participants

1. **Susan Alexander** - USDA Forest Service, Regional Office Ecosystem Planning
2. **Greg Aplet** - The Wilderness Society
3. **Keith Argow** - National Woodland Owners Association
4. **Clark Binkley** - International Forestry Investment Advisors
5. **Richard Birdsey** - USDA Forest Service, Northern Research Station (NRS)
6. **Gary Boyd** - International Paper
7. **Jim Brown** - Consulting Forestry LLC, former OR State Forester
8. **Johann Bruhn** - University of Missouri
9. **Nils Christoffersen** - Wallowa Resources
10. **Cecilia Danks** - University of Vermont, School of Environment and Natural Resources
11. **Paul DeLong** - WI Department of Natural Resources
12. **Gary Dodge** - Forest Stewardship Council (FSC)
13. **Matt Donegan** - Forest Capital Partners LLC
14. **Maia Enzer** - Sustainable Northwest
15. **Alec Giffen** - ME Forest Service
16. **John Hagan** - Manomet Center for Conservation Sciences
17. **Linda Heath** - USDA Forest Service, Northern Research Station (NRS)
18. **Ann Ingerson** - The Wilderness Society
19. **Scott Jones** - Forest Landowners Association
20. **Lynn Jungwirth** - Watershed Training and Research Center
21. **Steve Koehn** - MD Dept. of Natural Resources, Forest Service
22. **Bill Lange** - USDA Forest Service, Office of Research and Development, Policy Analysis
23. **Beth Larry** - USDA Forest Service, State and Private Forestry
24. **Al Lucier** – National Council for Air and Stream Improvement (NCASI)
25. **Kathryn Lynch** - Institute for Culture and Ecology (IFCAE) & University of Oregon
26. **Tim Maker** - Biomass Energy Resource Center (BERC)
27. **Catherine Mater** - Mater Engineering Ltd.
28. **Connie Millar** - USDA Forest Service, Pacific Northwest Station
29. **Cassandra Moseley** - University of Oregon, Institute for a Sustainable Environment
30. **Steve Mueller** - International Wood Fuels
31. **Carlton Owen** - US Endowment for Forestry and Communities Inc.
32. **David Piltz** - Oregon State University,
33. **Al Sample** - Pinchot Institute for Conservation Sciences
34. **Neil Sampson** - University of Idaho, Yale School of Forestry, The Sampson Group
35. **Allen Solomon** - USDA Forest Service, Missoula, MT
36. **Peter Stein** - Lyme Timber

37. **Yana Valachovic** - Cooperative Extension Humboldt County
38. **Bettina Van Hagan** - Ecotrust
39. **Sara Vickerman** - Defenders of Wildlife
40. **Alice Ewen Walker** - Alliance for Community Trees
41. **Mike Walsh** - Chicago Climate Exchange (CCX)
42. **Laurie Wayburn** - Pacific Forest Trust
43. **Kathleen Wolfe** - University of Washington, College of Forest Resources