




The State and Future of U.S. Forestry and the Forest Industry

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Workshop Report and Recommendations

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Introduction

Both the forest products industry, and accordingly, the forestry sector, in the United States (U.S.) have experienced extreme volatility, unprecedented challenges, and substantial change over the past two decades. In many areas, old operating assumptions have been challenged and discarded at an increasingly rapid pace, and practitioners, policy makers, researchers, and educators have struggled to keep up. A group of leaders met in Washington, D.C. to discuss this changing context and its implications for forests and forestry at an event sponsored by the USDA Forest Service (USFS) and the U.S. Endowment for Forestry and Communities (Endowment) and hosted by the Society of American Foresters and Resources for the Future.

The focus of the workshop dialogue resulted from surveying a diverse group of leaders in the forestry, forest products, and conservation sectors to identify and prioritize key issues in the forestry sector. The goal of the dialogue was to develop a roadmap for positive change to yield a brighter future for this important sector. We focused on five priority issues that included: 1) forest product markets; 2) forest land tenure and ownership; 3) the health and integrity of the current supply chain in forest products; 4) ecological health of federal forests (including issues of disease and vulnerability to catastrophic wildfire); and 5) tax policy and forest land tenure. In addition to these priorities, we discussed such issues as ecosystem services, regulation, woody cellulose nanotechnology, invasive species, and effects of competition from other products.

The organizing template that forms the forestry sector in the U.S. was generally set in the first decade of the 20th century. As new challenges have emerged, these issues have been addressed in the context of this template with relatively modest modifications over time. Questions are now emerging about whether the existing template is up to the task of resolving the new issues that confront the forestry sector, or whether more significant structural changes are in process and/or needed. Much of the existing template is built on a platform of federal environmental, natural resources, fiscal, taxation, and trade policies. As change and restructuring of the sector continues, this platform will benefit from re-examination. This Report summarizes trends in the five priority issue areas that were the focus of the workshop and presents proposed action items that resulted from the workshop discussions.

Trends and Future of U.S. Forest Products Markets

Introduction

Emerging from a recession that depressed some markets to levels that equaled the Great Depression, the near-term future for U.S. forest products markets is generally optimistic. The longer-term future suggests both opportunities and challenges.

The markets into which U.S. forest products can be sent have never been more diverse and interconnected. These include both domestic and foreign markets. They also involve an expanding range of market opportunities, both for traditional, as well as newly emerging, products. For traditional forest products, these markets will also invite increased competition from alternatives to wood-based materials.

Priority Trends and Issues of Concern

Each of the major or emerging markets for U.S. forest products appear in a slightly different situation as to the near term future, and with somewhat different issues of concern involving longer-term economic health.

Paper and Packaging

In the paper and packaging area, markets continue to improve. Much of the increasing demand is driven by emerging markets in China, Brazil, and India, as well as the recovery of more developed economies. Worldwide demand for paper and paperboard is expected to rise at an average 2.4 percent annually. Yet, this overall growth belies significant changes happening within the segment. Newsprint is expected to continue declining at about 5 percent per year with printing and writing paper slipping by 3 percent.

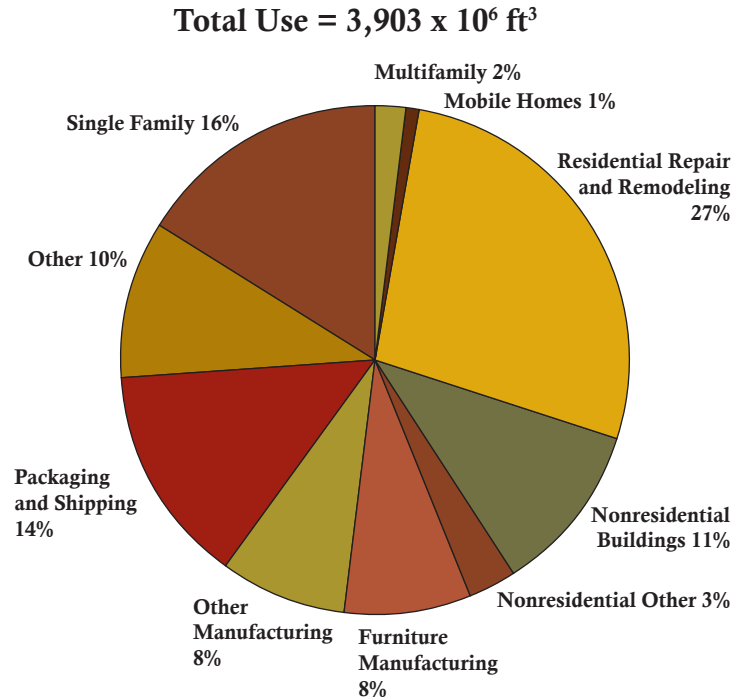
Despite the rise of a digital world, paper remains a critical necessity. It is on the rise as a green alternative to petroleum-based packaging. Research and innovation continue through product improvements, such as stronger corrugated boxes, as well as the development of new products.

Areas of concern include how to enhance incentives to increase the raw material supply, create a more predictable environmental regulatory environment for manufacturing, engage new partnerships for resource sustainability, and create a mechanism (for example, through a commodity check-off program) to engage the public more actively about the renewability and environmental values of paper products.

Hardwood Lumber Products

Markets in the hardwood lumber sector are improving slightly, but still down 40 percent from their high point in the late 1990s. Full emergence from the recession will not likely restore these market highs due to a diminished workforce, timber supply restrictions, and tighter credit for expansion. The nature of the markets has also changed. In the 1970s, 68 percent of the hardwood market consisted of non-industrial uses. By 2012, this ratio reversed, with 61 percent of the market consisting of industrial uses. Nevertheless, the markets are expected to continue to improve, albeit gradually.

Areas of concern include the need to maintain and expand the ban worldwide of illegally harvested timber (hardwoods are particularly susceptible to competition in world markets from illegally sourced material), the



diminished workforce for timber harvesting, and the treatment of hardwood lumber in green building and bio-based procurement systems. The hardwood sector is also in the process of creating a check-off program that, if approved, will assist with marketing and public education.

Sawn Building Materials

The markets for sawn building materials are recovering but not fully recovered. Full recovery of about 1.5 million new units annually will probably not occur until 2015 due to the remaining inventory of vacant homes. At the same time, the industry is having difficulty responding to a modest increase in demand over 2009 levels due to the shrinkage in mill capacity during the recession. This capacity question will be thrown into sharper relief, as there will be a decline of Canadian lodge pole pine available to markets after a large volume of insect-infested material is completely harvested.

Assuming the manufacturing capacity question can be resolved, domestic and foreign markets beyond 2015 look very positive. Additionally, the use of sawn lumber in multifamily home construction is on the rise. This industry segment (softwood lumber) has already established a check-off which will begin to show results in marketing and public education over the next few years.

Wood to Energy

This market has seen significant growth in a relatively short period of time, driven primarily by the adoption of renewable energy standards within the European Union (EU) countries. In 2006 wood pellet production worldwide was between 6 and 7 million tons per year. In 2010 it reached 13.6 million tons. (SOURCE Global Wood Pellet Industry Market and Trade Study, IEA December 2010). Purchase by EU countries has put this market above the radar in the U.S.

The feed stocks supplying this market have traditionally been composed mainly of byproducts from other sectors or waste materials. However, new large-scale mills capable of producing one million tons or more annually, are sourced from thinnings and small-diameter trees that have traditionally supplied the pulpwood and Oriented Strand Board (OSB) segments. Unlike other markets in the sector, this market is not cyclical. Therefore, supply agreements are generally long term in nature. Beyond the EU countries, there are also markets emerging in China, Korea, and Japan.

Areas of concern include the development of best management practices for sourcing, the application of third-party certification to a larger land base, and the implementation of track and trace systems to bring the benefits of certification to nonparticipating landowners. There is also considerable concern within the other industry segments (e.g., pulp and OSB) about future competition for raw material supply.

New Products Developed through Nanotechnology

The recent development of cellulose nanocrystals (CNCs) and Nano fibrils (CNF) opens a brave new world for wood products. When CNCs and CNFs are added to other materials, products can be made stronger, lighter, more cheaply, and from renewable resources. The specific product uses are both numerous, as well as novel, for cellulose-based applications.

The major area of concern is how fast public/private partnerships can be created and expanded to take advantage

of this new opportunity. The technology has the potential to greatly accelerate forest restoration work by providing a new market for very low value fiber. But the steps necessary to start include identifying available landscapes for raw material supply needs, establishing markets, and beginning the construction of manufacturing facilities to put product into these new markets. There is an incredible potential, but much spade work needs to be completed.

Table 2: Jobs and GDP Projections for Nano-enabled Products (all types of nanomaterials)

Year	Direct Jobs		GDP (Final Product Value)	
	United States	World	United States	World
2000	~25,000	~60,000	\$13 billion	\$30 billion
2008	~150,000	~400,000	\$80 billion	\$200 billion
2015	~800,000	~2,000,000	\$400 billion	\$1,000 billion
2020	~2,000,000	6,000,000	\$1,000 billion	\$3,000 billion

Source: National Nanotech Institute and National Science Foundation

When separating out the nanocellulose category from all types of nanomaterials shown in Table 2 and projecting conservative levels of market penetration for products, the figures for jobs and values remain impressive (see Table 3). For example, at a demonstration-scale, nanocellulose technology can deliver 500 annual tons per 50 employees. Economies of scale and further technology development will drive this to 500,000 tons per 1,000 employees. Therefore, the first 8 million tons of demand potential for cellulosic nanomaterials could conservatively represent 16,000 direct jobs and 64,000 total new manufacturing jobs (using an indirect factor of 3). Further, it is projected that cellulosic nanomaterial utilization could be as high as 3-4 percent across these target markets building to over 24 million tons of demand. This potential 24 million tons of demand could drive as many as 224,000 jobs and a potential GDP final product value of over \$100 billion in the United States -- as projected by the NNI and National Science Foundation study.

Table 3: Jobs and GDP Projections for Wood-based Nanotechnology

Market Penetration	Production Tons	Direct Jobs	Manufacturing Jobs	GDP
1%	8 million	16,000	64,000	\$10 billion
3%	24 million	74,000	224,000	\$100 billion

Source: National Nanotech Institute / National Science Foundation¹

Measures of Success

General measures of success fall into three broad areas. First is market growth: the forestry sector should experience restored and growing domestic and export markets in which better informed suppliers and consumers are engaged in a two-way dialogue about traditional and newly emerging products made from wood. Second is enhanced R&D investment: the forestry sector will demonstrate increased investment in research and product development and improvements that open currently restricted markets, increase raw material utilization, and appeal to a younger, more diverse, and broader customer base. Finally is an improved regulatory and policy environment: through increased cooperation in the entire forestry sector, a governmental regulatory and policy environment evolves that recognizes the environmental benefits of wood, provides a greater degree of certainty about the timing and level of capital investment needed to meet regulatory requirements, and rewards production, utilization, and manufacturing efficiencies.

Action Items—General Themes

Retaining and expanding markets for wood-based products will require three broad categories of activities: (1) increased marketing activities designed to expand markets for traditional products and develop markets for new or nontraditional products; (2) increased research and development activities devoted to new product development, better raw material utilization, and breaking down market access restrictions; and (3) an increased commitment to public and government affairs work to expand a policy environment favorable to the use of wood as an environmentally preferred product.

Action Items—Specifics

Each of the broad action areas listed above will require detailed action plans and budget outlays. Some of the key actions should include the following.

Increased Marketing Activities

- The paper industry should move as quickly as possible to pass and implement its market check-off program.
- The hardwood industry should follow suit in moving its program forward.
- The timber harvesting and wood-to-energy sectors should each seriously consider the question of pursuing a check-off program.
- As multiple check-offs are adopted, each governing board should join in a coordinating committee with the softwood lumber check-off board to compare and coordinate check-off activities. The coordinating committee should meet at least quarterly to discuss check-off supported marketing initiatives and

¹See also Michael C. Roco, Chad A. Mirkin, and Mark C. Hersam, "Nanotech Research Direction for Societal Needs in 2020: Retrospective and Outlook," available at <http://www/wtec.org/nano2>

develop an overall strategy that relates to the common bond of forests as the source of raw materials supporting all segments of the industry.

- As the Binational Softwood Lumber Council sunsets, the Softwood Lumber Board (SLB) should take the lead in developing marketing initiatives to expand wood-based construction into multistory, commercial applications. The commercial market was long ignored when the housing market was robust. That is no longer the case, and the light commercial market offers an attractive target of opportunity.
- The SLB should take the lead in seeking out international showcase opportunities to highlight new applications in wood-based construction.

Increased Research and Development and Product Improvement

- The USFS Forest Products Laboratory (FPL) and the forest industry should devise a new public/private research and development model to ensure that necessary investments are being made in critical product development initiatives.
- The FPL, working via a new public/private oversight (and potentially new governance) model, should take the lead in the development of wood-based nanotechnology. New Memoranda of Understanding should be promulgated with relevant universities and private-sector partners to advance this promising, new technology to the commercial stage.
- The FPL, with direct support from the forest products industry, should take the lead in evaluating whether the current methodology for developing softwood lumber standards is still an accurate way to assess the properties provided by the current day forest resource.
- The National Science Foundation (NSF), in cooperation with the US Department of Agriculture (USDA), should convene a panel to assess the current situation for, and resources devoted to, forestry research. The panel should make recommendations to NSF and USDA, as well as the Congress, concerning any needed changes to the structure and resources supporting forestry research.

Increased Commitment to Government and Public Affairs

- The industry, USFS, and the state foresters should continue to work with the Department of Agriculture to square the limited use of wood in its bio-based procurement program, with the Department's conflicting view that wood represents an environmentally preferred resource material.
 - The industry, USFS, the state foresters, and the Environmental Protection Agency (EPA) must finally agree upon and resolve the issue of the "carbon neutrality" of biomass.
 - The Lacey Act Coalition, in cooperation with the Departments of State, Interior, and Agriculture, should seek funding for full implementation of the 2008 amendments to the Lacey Act, as well continue efforts to have similar regulatory requirements adopted by major U.S. trading partners.
 - The EPA should work more closely with the regulated community and other stakeholders to develop a more predictable capital investment environment to achieve valid regulatory goals.
 - The Sustainable Forestry Initiative, the Forest Stewardship Council, and the industry should engage LEED standard-setting processes to reassess the treatment of wood in the LEED standards.
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Private Forest Land Tenure and Ownership:

Stability and Potential to Provide Sustainable Sources of Wood

Introduction

Privately held forest lands produce a wide range of values to landowners, consumers, and society as a whole. Institutionally, the forest products industry has relied extensively on private lands to meet growing demands both at home and abroad. The ownership structure of these private forests remained relatively stable through much of the 20th century. However, this structure began to shift significantly in the 1990s, such that the ownership landscape today bears little resemblance to owner types and classes of just 25 years ago.

Corporations, particularly ownerships tied to the pulp and paper industry, have largely divested of land holdings. This divestiture over the past couple of decades has coincided with the emergence of a new-class of forestland owner—the financial investor. Timber Investment Management Organizations (TIMOs) and Real Estate Investment Trusts (REITs) represent two of these new types of forestland owners. Additionally, the trend towards forests being divided into smaller parcels has led to many more landowners, with each possessing smaller acreages. The backdrop with both of these changes is the threat of losing forests to real estate development, diminished access to sustainable and reliable sources of wood, and fragmentation of forest ecosystems to the point that they cannot provide their range of ecological services.

This shift in landownership types and landownership diversity has resulted in a range of challenges to effective forest management concomitant with reliable sourcing of raw materials and the pressure of competing with highest and best economic uses of land. Despite these challenges, opportunities exist to reengage individuals and forest-proximate communities about the value of the nation's forests. Robust forest communities can emerge through efforts targeted at smaller landowners, messaging regarding the importance of keeping forests as forests, and the development of tax incentives and alternative markets.

Priority Trends and Issues of Concern

In the mid-1990s, the valuation of vertically integrated forest products companies shifted due to the way their large acreages were assessed by Wall Street. A result of this valuation shift was an industry-wide divestiture of these assets. This transfer of forestland from one class of owner to other ownership types was unprecedented and represented the single largest private landownership change in the nation's history.² TIMOs and REITs began purchasing forestland in earnest during this same time, and they accelerated their purchasing through the early years of the 21st century. In addition to TIMOs and REITs, smaller family-owned forests became a larger part of the landscape.

TIMOs and REITs

New investment-type ownerships, such as Hancock Timber, Forest Investment Advisors, and Lyme Timber, represented a comparatively small share of forestland ownership in 1990. Yet, these types of forestland owners have nearly completely replaced vertically integrated forest products companies. Some of these companies have restructured their corporate divisions, such that companies that were once C-Corps have evolved into REITs (Weyerhaeuser and Rayonier for instance).

²Statement and Figure 1 from Jim Hourdequin "Some Thoughts on the Future of TIMOs and REITs" presentation at the State and Future of Forestry in the US Meeting, Washington, D.C. May 29, 2013.

Figure 2-1a: The Structural Shift in US Timberland Ownership from 2002 to Present

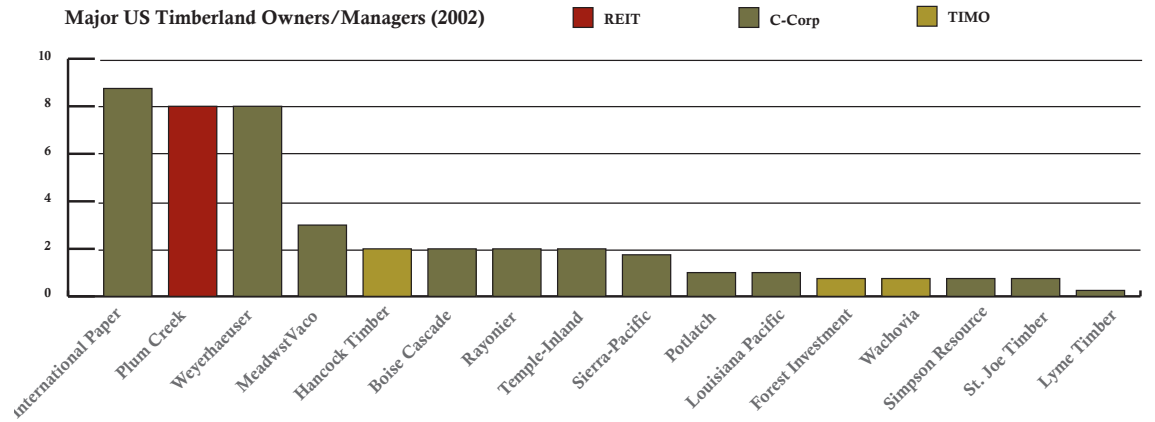
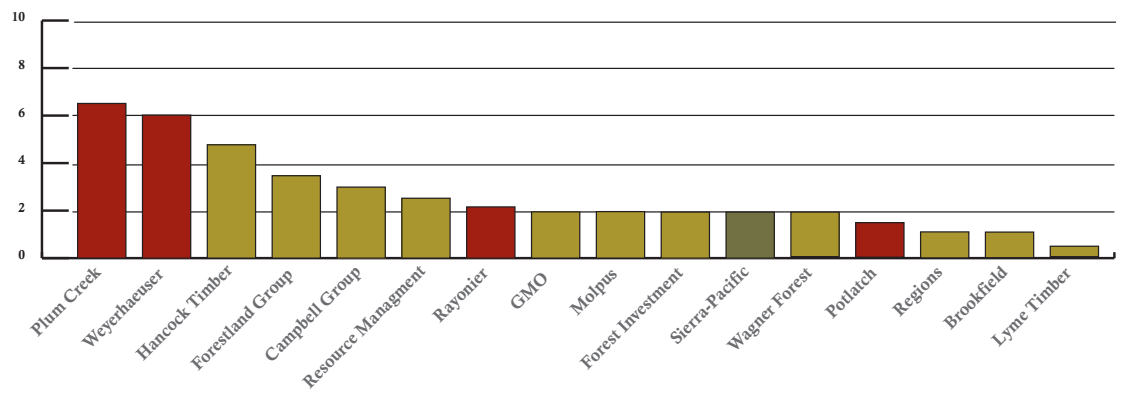


Figure 2-1b: Major US Timberland Owners/Managers (Current)



Forestland by Ownership Class U.S., 2011

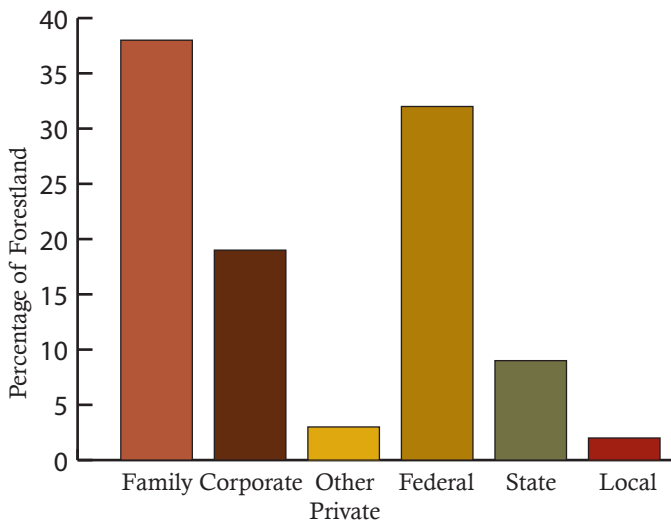


Figure 2-2: Percentage of Forestland Owned Across All Ownership Types³

Family Forests

While the corporate structure of forestland ownership has shifted, family forests remain the single largest type of owners. According to the 2011 National Woodland Owners Survey, there are more than 11 million family-owned forests owners representing more than 22 million individuals.

These owners are diverse in their motives for owning forestland and in the things that they value about their land. Despite this diversity in motives and interests, most of these forestland owners are concerned with being good stewards of their resources. However, most of them are not engaged with the forest management and conservation community, with fewer than 20 percent of owners seeking advice from forestry professionals on land management and fewer than 10 percent of owners having a management plan for their lands (Figure 2-3).

³ Figure adapted from Brett Butler, "Findings from the National Woodland Owner Survey" presentation at the State and Future of Forestry in US Meeting, Washington, D.C. May 29, 2013.

Amidst the backdrop of a changing landscape of forestland ownership and the access to timber and biomass to supply forest products markets, there are three priority issues of concern: Developing robust forest communities, improving landowner engagement, and keeping forests as forests.

Measures of Success

The measures of success regarding developing robust forest communities, improving landowner engagement, and keeping forests as forests should be achievable in concert with one another. This chapter focuses on the role of private forestlands in the supply of wood products and in the continuation of maintaining a forested landscape and all of its inherent environmental and societal benefits. Successful measures will necessarily be both reactive and proactive. Current threats must be addressed reactively. For instance, the widespread declines in reliable supplies of raw materials must be reversed—these declines are not due to lack of raw materials, but due to land ownership changes, access, and reductions to infrastructure and workforce. The rebuilding of communities and the tethering together of landowners with access to resources and expertise are more prospective. Existing programs, such as Tree Farm, group certifications, and landowner associations, can document and grow the degree to which landowners are increasing their use of professional natural resources assistance and enrollment in programs intended to assist in good forest management. Yet, much more must be done.

Traditional Engagement Activities Ownership & Acres, U.S., 2011

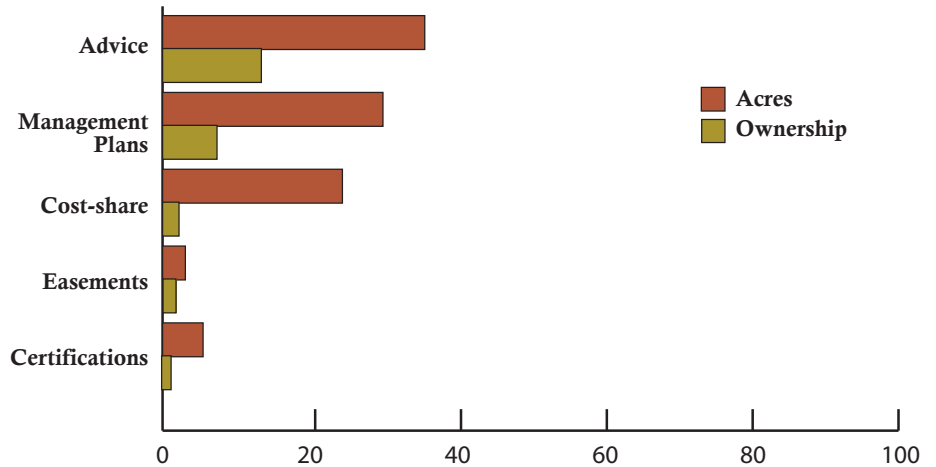


Figure 2-3: Percentage of Forest Management Activities Pursued by Owners and Across Acres⁴

Action Items—General

The items enumerated below are intended to outline specific courses of action that are achievable and tied to a timeline. A general timeline suggests that initial efforts begin prior to January 2014. Any action item should allow some flexibility in implementation, but each should also have enough specificity to make clear what is important to be done. In addressing the concern of the loss of productive private forestland, all desired action items should strive towards maintaining (or increasing) forest cover and incentivizing the people and communities that can influence the future of these lands.

Individuals should be identified at the state level to assume leadership in moving these actions forward. In some cases, these individuals may be in the best position to coordinate these efforts themselves; in other instances, they may identify other individuals in their states. Ideally, each state should develop a baseline against which status reports are developed to indicate progress.

Action Items—Specifics

The following specific action items are intended to provide direction to one or more agencies/organizations with the capacity to effect change regarding the previously listed priorities of concern. Each item below should be considered as a component to be pursued in concert with other actions listed elsewhere in this document. Timelines and benchmarks are provided as rough guidelines. Staffing and funding will be challenges to initiate any new action items, but low-cost options for labor exist in many forms, including service-learning programs through specific college and university courses as well as internships and practicums. Further, grant monies can serve to stimulate progress and build out portions of the recommendations in this document.

⁴ Figure adapted from Butler presentation.

Action Item 1—Develop Robust Forest Communities

Developing robust forest communities necessitates concerted efforts among multiple parties across all scales of government.

- At the local level, landowner networks should be developed such that individuals have access to support and expertise for achieving their management goals. Too often these support networks have been undeveloped or incomplete. County and/or extension foresters should provide the impetus for engaging local landowners with regular communications (newsletters, blogs) and workshops.
- State-level governments and forest landowner not-for-profits (American Forest Foundation; Forest Landowners Association, etc.) should direct resources (human and financial) towards supporting staff and funding for outreach and messaging.
- The web resources developed by the American Forest Foundation and their outreach efforts using social media can be further developed to reach both landowners and consulting foresters to make parties aware of resources and best practices.
- Further, efforts should be coordinated by local governments to identify natural partnerships among businesses and organizations with a shared purpose of maintaining forestland. These efforts might include formalizing partnerships between utilities and private landowners, schools and mill operators, county landowner associations with professional associations, such as the Society of American Foresters (SAF).

Action Item 2—Engage Landowners

- A specific tactic related to landowner engagement involves developing a database of success stories that can be disseminated and shared both with landowners and foresters (both public and private). This database would serve to document specific tools, practices, and achievements. Initially, the USFS through the Family Forest Research Center is the most obvious choice to create, develop, and maintain this database. The challenge will be accessing and disseminating the information from this database in local areas where the success stories can do the most good. An option is for the USFS to commit outreach personnel to serve in the role of technical assistance.
- The loss of extension, state forest agency, and company landowner assistance programs has created a void in capacity to support small family forest owners, which needs to be filled through a combination of renewed federal and state public-sector and non-governmental organization investments in such assistance programs.

Action Item 3—Keep Forests as Forests

- The simple axiom of keeping forests as forests belies the complexity of competing factors pushing landowners to consider developing forested areas. Specifically, the forces that tend to diminish or devalue the benefits of forestland include tax burdens, access to forest management options, the support for traditional forest markets, and the development of new, alternative markets.
- State and local governments can do much to promote tax incentives for working landscapes.
- Given the number of REITs and TIMOs scheduled to dispose of forest land in the next decade, the State Foresters should explore the opportunity to place bond levies or initiatives on state ballots to fund the acquisition of productive forest land to add to, or create, a working state forest system.
- Additionally, states can legislatively recognize the role of forests and forestry in their economies. In 2012, the State of Vermont passed the Working Lands Investment Act, which established an appropriation of \$1,175,000 to be used for entrepreneurship, business development, and job creation.⁵
- In addition to government and legislative efforts, keeping forests as forests requires landowners to

⁵ *The Vermont Working Lands Enterprise Investment Bill S.246/H496.* <http://vtworkinglands.org/programs/policy-councils/working-landscape/bill>

commit to maintaining the value of forests in the face of “highest and best economic use” pressures for land development. These values can be amplified through achieving success in the other action items: developing robust forest communities and landowner engagement. To the extent that landowners become more engaged with their forest management options and broader communities develop a shared sense of value towards their natural resource, keeping forests as forests should be a natural byproduct.

- A wide range of organizations from industry to conservation should collaborate to ensure that favorable tax treatment remains in place for working forest conservation easements that can serve to provide tax benefits and/or income while ensuring that forests remain as forests.
 - Easements joining privately-held forest lands with public or non-profit entities have proven successful in maintaining forest cover in many areas. Relationships between NGOs, such as The Nature Conservancy and Land Trusts should be encouraged. Consulting foresters should inform landowners of the suite of options for maintaining forestland through the transfer of some property rights.
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Chapter 3

The Health and Integrity of the Current Supply Chain in U.S. Forest Products Manufacturing

Introduction

The stability, resilience, and current challenges differ significantly for the major links in the current supply chain for forest products manufacturing. Some major links include: (1) the ability of the forest resource to provide a sustainable supply of raw material to respond to manufacturing and market needs; (2) the availability of environmentally certified raw material for those markets and customers that demand it; (3) the status of the workforce that harvests and delivers the raw material for processing; and (4) the status of the manufacturing workforce.

In evaluating both the health and integrity of the current supply chain, there is a critical predicate—the individual links in the supply chain are as independently controlled today as they have ever been in history. Fully integrated forest products manufacturing corporations no longer exist in any real sense. No single corporate entity, nor even any industry segment, controls the entirety of its manufacturing supply chain. Economic subsidies from one link to another in order to maintain the overall integrity of the chain are no longer provided. Consequently, the strength of each link is subject to separate variables—notwithstanding the age-old proverb that a chain is only as strong as its weakest link. Moreover, there is strong evidence to suggest that those who reside within individual links are largely unaware of the challenges faced by the rest of the chain.

Priority Trends and Issues of Concern

Each of the different links in the supply chain appear in a slightly different situation as to its near-term future, as well as with somewhat different issues of concern involving short-term and long-term economic health.

Forest Resource Supply

The most encouraging part of the overall prognosis for this link in the supply chain is that both the U.S. and North America as a whole are growing more fiber than is harvested. That said, there are still significant issues of concern about: (1) increased frequency and intensity of wildland fires; (2) the increasingly rapid spread of invasive species, insects, and disease pathogens; (3) climate trends that may reduce the productivity of some forest types; (4) forest fragmentation and conversion of producing forest lands to other land uses; and (5) public policy decisions that restrict access to otherwise productive forests in need of management intervention if for no other reason than to enhance forest health.

One particular challenge is the increased market pressure placed on the resource base by a new and growing market—stand-alone energy production from wood fiber. This market (which includes both bioenergy and renewable liquid fuels) has been developing in the U.S. for the better part of a decade, as compared to the other wood products markets that have existed for 140 years. The annual sales volumes for wood-based bioenergy pale in comparison to the \$200 billion U.S. demand for wood and paper products. Concerns raised about this relatively new market for fiber include: (1) questions about whether U.S. forests can sustainably support this product use; (2) the way carbon from forests will be treated and accounted for; and, (3) the belief that production of energy from fiber is subsidy-driven through a policy (European Union) that may not be stable.

Certified Forest Resource Supply

Certain wood products customers began demanding certifiably sustainable products beginning about two decades ago. Over this time period, customers created markets within markets that producers have been striving to serve.

Today, about 10 percent of the world's forests are certified by one certification system or another as sustainably managed. However, 70 percent of these certified forests occur in only five countries—Canada, the U.S., Russia, Finland, and Sweden.

Issues of concern about the stability of this link include a growing recognition that, rather than actual certification of a sustainably managed resource, the current systems merely represent a process for continued improvement of management practices. Finally, despite 20 years of experience, there is still little quantified and widespread evidence that certification provides producers any economic benefits in the broader marketplace.

Logging Workforce

Based upon available economic and production data, the logging workforce may be the weakest link in the supply chain today. Logging capacity has been reduced by 25 percent just since 2009. The reasons are many and significant. Operating costs have soared with increased fuel, parts, and equipment costs (the cost of new logging equipment has risen 50 percent in the last decade). Due to the increased expense of new equipment, the lack of long-term contracts and other factors, financing has been harder to secure. Logging markets contracted during the recession as landowners deferred harvests due to low stumpage rates and as mills were shuttered. These factors and more have led to squeezing of rates for their employees, such that 71 percent of U.S. logging companies report difficulty in attracting new employees (Timber Harvesting magazine, 2013). In 2010, 51 percent of logging companies reported a loss or were simply breaking even.

Essentially, one hundred percent of the logging workforce is employed by small, independent logging companies. These companies are family owned, with the median age of employees having risen to 54 years of age. Considerable evidence suggests that, over the last decade, this link has been economically squeezed between forest owners and manufacturers, jeopardizing the entire chain.

Manufacturing Workforce

During the recent recession, the manufacturing workforce shrank along with manufacturing capacity. The ability of the industry to respond to increased product demand will be a workforce challenge, as well as a mill capacity challenge. Manufacturers will find it difficult to find new workers for highly and moderately skilled positions due to the aging nature of the forest products manufacturing work force, as well as competition from other industries and employers who are offering more attractive career opportunities, and/or richer compensation packages.

One area of particular concern is the training capacity within the industry. Without an organized effort to support top-to-bottom training programs, there will be increased unemployment despite high-skilled positions remaining unfilled due to a lack of well-trained workers. This gap could become even more problematic if forest certification systems move to accelerate the emerging trend of including labor standards in the certification process.

Measures of Success

General measures of success can be defined in three broad areas. First are indicators of economic success in which every link in the supply chain is operating in an economically sustainable fashion. Second is evidence of profit margins, with profit margins commensurate in each link of the supply chain. Third is evidence of adequate training systems, showing that such systems are available to allow an increased number of new employees entering sufficient to meet the needs of each link in the supply chain.

Action Items—General Themes

Improving the health and integrity of the current supply chain in the U.S. manufacturing will require three broad categories of activities: (1) changes to the financial incentives that each link in the supply chain currently enjoys to strengthen the health of the entire chain; (2) expansion of forest certification programs to serve expanding markets; and (3) increased training programs to address skilled workforce shortages.

Action Items—Specifics

Each of the broad action areas listed above will require detailed action plans and budget outlays. Some of the key actions should include the following.

Changes to Financial Incentives

The landowner, logging, and manufacturing sectors should jointly approach Congress:

- During the current tax reform debate to promote favorable tax treatment for the execution of long-term timber supply agreements among the sectors (especially from the most uncertain of sources—federal lands);
- During the current Farm Bill debate to promote expanding the Farm Credit program to be available to help finance the purchase of new logging equipment.
- During the current highway bill debate with a proposal to reduce the regulatory burdens being imposed on independent truckers.

Changes to Forest Certification Programs

- The Sustainable Forestry Initiative (SFI) and the Forest Stewardship Council (FSC) must find ways to collaborate to expand cost-effective and appropriately designed forest certification to other landowners – especially family forest owners.

Changes to Training Programs

- The American Loggers Council and/or other segments of the timber harvesting chain should revisit the question of approaching the US Department of Agriculture to initiate a timber harvesting check-off program. The proceeds of such a program could be used in significant part to underwrite the cost of new training programs to assist with workforce needs as well as to “reinvent” the timber harvesting segment as the primary outreach link with family forest owners.
- The landowner, logging, and manufacturing sectors should jointly:
 - Approach the Department of Labor and the USFS to expand the list of trades taught through the Job Corps to include timber harvesting.
 - Work with the National Association of School Administrators to assess the possibility of developing a timber harvesting career program for high schools
 - Work with the National Association of Land Grant Universities to assess the possibility of expanding the number of timber harvesting and harvesting company management programs offered in the U.S.

Ecological Health and Vulnerability of Federally Owned Forests

Introduction

The effects of climate change, increasing forest fragmentation, and other stressors increasingly affect forest health across the U.S. Of particular concern are the ways in which these stressors affect federally owned forests and the capacity of the public sector to manage them. The USFS manages 19.6 percent of the nation’s forests, with many of these lands concentrated in the western U.S. Though federal forests were managed through much of the 20th century primarily for their commercial and recreational values, increasingly these forests are also recognized for their role in protecting water quality and the water supplies of communities, maintaining biodiversity, storing carbon, and other benefits. Despite many efforts to invest in and manage National Forests, their health is a significant and growing concern.

U.S. Forest Ownership (%)

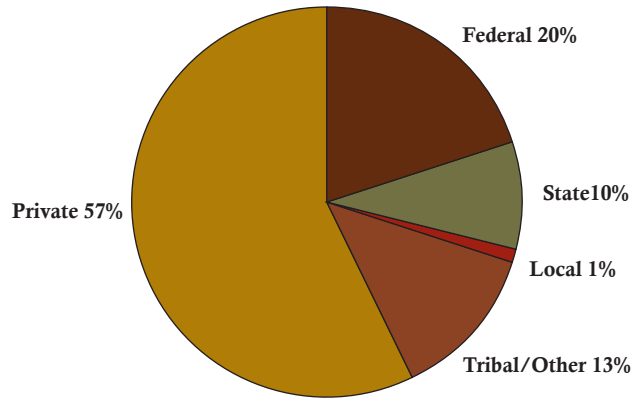


Figure 4-1: U.S. Forest Ownership—Source: US Forest Service

Management of National Forests requires adequate, prioritized, and efficiently deployed federal investments as well as requiring significant collaboration with communities and landowners that live in and manage lands interconnected with federal forests. In a 2013 Report to the Secretary of Agriculture, the Western Governors’ Association (WGA) underscores their concerns that:

[F]ederal forest lands throughout the West are experiencing serious environmental stress that affects the health and vitality of these ecosystems. They are overgrown; they exhibit all the symptoms of an unhealthy ecosystem; and they demand urgent attention.⁶

Though the WGA’s focus was on National Forests in the West, similar challenges encumber federally managed forests, as well as some other public and private lands, across the nation.

National Forests—Significant Trends

Three factors shape the overall context in which the health of federal forests continues to evolve. These include the effects of a changing climate; forest losses and fragmentation on non-federal lands; and constrained federal financial capacity and societal support to manage the approximately 189 million acres of National Forests.

Effects of a Changing Climate: Accumulating evidence indicates that warming temperatures and shifting weather patterns may be contributing to increased frequency of extreme events like floods, droughts, and heat waves. These effects may also result in changes in the frequency, intensity, and timing of wildland fire; contribute to changes in insect infestations; affect water quality and availability; and result in changes in the composition of vegetation and distribution of wildlife.⁷

Forest Losses and Fragmentation: A 2012 report by the USFS projects significant forest losses over the next five decades resulting from increasing populations, continued urbanization, and other changes in land

Table 4-1: National Forests and Grasslands

	No. Units	NFS Acreage	Other Acreage	Total Acreage
National Forests	155	188,240,056	37,352,594	225,592,650
Purchase Units	59	388,312	1,903,356	2,291,668
National Grasslands	20	3,837,470	626,887	4,464,357
Other	62	455,572	71,498	436,402
Totals:	296	192,921,310	39,954,335	232,875,460

Source: USDA Forest Service

⁶ Western Governors’ Association, “Western Governors request private sector be utilized to improve federal forest management,” Letter to Secretary Vilsack, April 15, 2013, available at: <http://www.westgov.org/news/295-news-2013/442-western-governors-request-that-private-sector-be-utilized-to-better-manage-federal-forest-land>

⁷ See, for example, USDA, *Resource Planning Act Assessment*, 2010; and USDA, *National Report on Sustainable Forests*, 2012. See also, McKenzie, et al., *Global warming and stress complexes in forests of North America*, in Bytnerowicz, Andrzej, et al. (eds.), *Wildland Fires and Air Pollution*, The Hague, Netherlands, Elsevier Publishers, 2009: 317-337.

use.⁸ The report projects losses in the lower 48 states ranging from 16-34 million acres. While these losses will not generally be from public forests, the resulting land fragmentation will present challenges to forest management and may affect the capacity of forests to help sustain water quality and other benefits associated with large, intact expanses of forested lands.

Constrained Federal Financial Capacity: Overall federal spending for public lands is flat or trending downward, while management costs continue to rise. Moreover, for National Forests, the composition of spending has changed significantly over the past three decades. In the 1980s, spending on forest management comprised around 70 percent of the USFS budget; today, that figure is closer to 30 percent, with most of the remainder now going toward fire suppression, administrative support, and other programs. In fact, today fire suppression and management represents nearly 50 percent of the entire agency budget.

In particular, funding for projects to improve forest health through fuels treatments (prescribed burns and mechanical removal of overly dense vegetation) is constrained. For example, for its 2014 budget, the Forest Service

proposed a budget of \$201 million, a reduction of \$116 million for fuels treatments. Budgets for fuels treatment over the past decade have enabled the USFS to treat between one to three million acres annually, a range that cannot keep pace with challenges presented by insect and disease plights, drought, and overgrowth of vegetation that combine to increase risks of unnaturally severe wildland fires.

Priority Issues of Concern

While the National Forest System faces numerous challenges to sustain forest health, two issues stand out: fire and the spread of invasive species.

The Challenges of Wildland Fire: Many forests require fire for their ecological health. However, the

length of the fire season, trends in severity of recent fires, and the spread of suburban and urban communities into areas adjacent to National Forests present growing challenges for sustaining forest health. The wildland fire “season” is now estimated as over two months longer than 30 or 40 years ago.⁹ A 2013 USFS report notes that the “number of wildfires exceeding 50,000 acres has increased over the past 30 years, with most of that change occurring over the past 10 years.”¹⁰ Moreover, these large wildfires are becoming more intense than in the past.¹¹ Especially challenging is “exurban” growth, or what is sometimes referred to as the wildland-urban interface, which grew by 18 percent just in the last decade of the 20th century.¹² By 2000, an estimated one-third of U.S. homes were located in the wildland-urban interface.¹³ This interface may contribute to the fact that some 85 percent of wildland fires from 2001-2011 were caused by people.¹⁴

Measures of Success: Enhancing forest health ultimately requires: a) changing fire behavior to reduce the frequency and extent of uncharacteristically severe wildland fires; and b) enhanced capacity of communities to reduce risks from the wildland fires.

Action Items—General Themes: Reducing risks associated with catastrophic or uncharacteristically severe wildland fire requires three clusters of activities: 1) expansion and improved targeting of fuels treatments; 2) extended efforts to work with communities in the wildland-urban interface to reduce their vulnerabilities; and 3) increased (and targeted) efforts to communicate the benefits of fuels treatments in reducing risks from wildland fire and elevate crisis awareness.

Action Items—Specifics: Each of these broad action areas warrants detailed implementation plans, budgets, and activities. However, such efforts would benefit from including several key elements.

- Expansion and improved targeting of fuels treatments: Fuels treatments need to increase in quantity,

Forest Service Discretionary Budget History by Activity 1996-2005

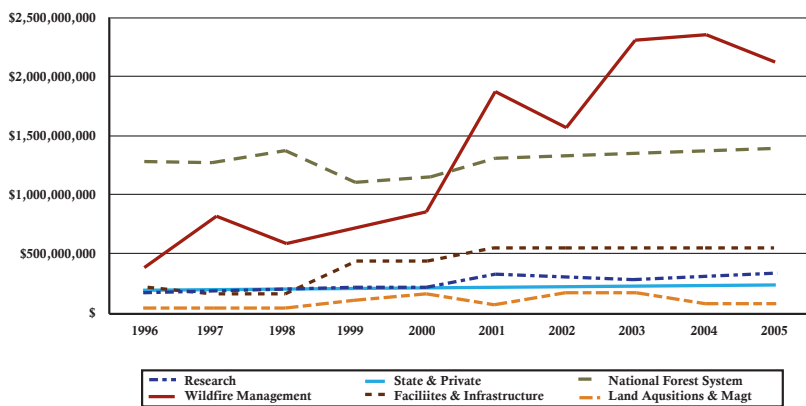


Figure 4-2: Forest Service Budget History

Source: Mark Rey, Power Point Presentation, 2006

⁸ US Forest Service, *Future of America's Forests and Rangelands: 2010 Resource Planning Act Assessment*, USDA, August 2012.

⁹ Westerling, A.L., et al. *Warming and earlier spring increase in Western U.S. forest wildfire activity*, *Science* 313, 940-943.

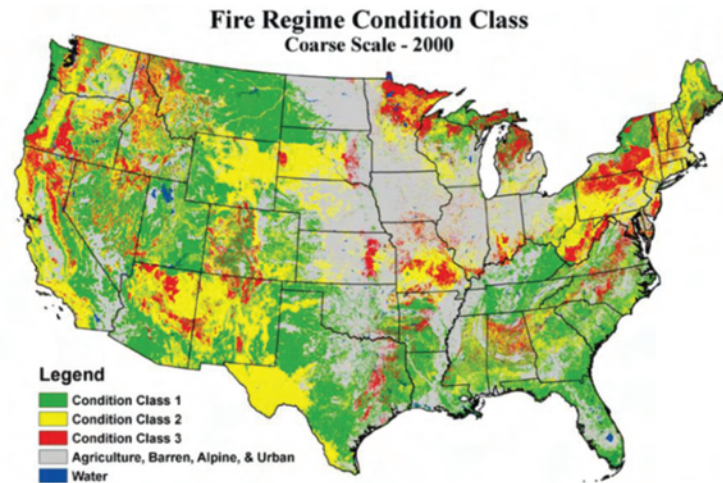
¹⁰ U.S. Forest Service, *Wildfire, Wildlands, and People: Understanding and Preparing for Wildfire in the Wildland-Urban Interface*, USDA, 2013, p. 1.

¹¹ Schmidt, K.M., et al., *Development of coarse-scale spatial data for wildland fire and fuel management*, USDA, Forest Service, 2002.

¹² U.S. Forest Service, *Wildfire, Wildlands, and People*, p. 10.

pace, and strategic focus. The USFS and Department of the Interior have documented effectiveness of fuels treatments in reducing the intensity of wildfires and enhancing capacity to control them and need the financial resources to sustain strategic levels of fuels treatments.

- Several tools and programs, such as stewardship contracting, Good Neighbor Authorities (enabling state forestry agencies to perform forest, rangeland, and watershed restoration services on National Forest System lands through cooperative agreement), and “Forest to Faucets” partnerships with communities, may provide means of leveraging state, federal, and other funds, such as ratepayer funds from water utilities and electric utilities, for fuels treatments and forest health.¹⁵
- LANDFIRE, a geospatial tool, along with other information on fire behavior, has increased the capacity of federal agencies to focus their fuels treatment investments in ways most likely to reduce risks to communities and enhance their overall effectiveness.
- These efforts require application of a Cohesive Wildland Fire Strategy, including a corresponding budget strategy designed to assess costs and develop budgets necessary to implement the strategy over time.
- In the long-run creation of local market-based systems for uses of low-value wood offer the greatest and most sustainable way to provide on-going land treatments.
- Extended efforts to work with communities to reduce vulnerabilities: The Healthy Forests Restoration Act set the stage for federal agencies to work more closely with local communities in identifying critically vulnerable infrastructure; expanding local programs such as FireWise programs to reduce risks to homeowners and, infrastructure; and linking federal agency fuels treatments to Community Wildland Fire Protection Plans (CWPPs). These efforts need continued focus, refinement, and funds for implementation.
- Increased Communication and Crisis Awareness: Federal agencies need to work closely with states, tribes, local governments, and nonprofit organizations to expand local understanding of who is at risk from wildland fires, to communicate the benefits of fuels treatments, and engage direct beneficiaries in partnerships to reduce risks. These partners include, in particular, water utilities, electric utilities, and others that manage critical infrastructure. Some existing partnerships offer potential models, such as the Umcompahgre Partnership, a 10-year project to treat over 500,000 acres, including a focus on two energy transmission-line corridors.



The Challenges of Invasive Species: Trend data over the past half-century show significant increases in the percentages of non-native, invasive insects and plants.¹⁶ One USFS report estimates the public costs for damages, losses, and control of invasive species at \$138 billion per year.¹⁷ Indeed, invasive species may present one of the

¹³ *Ibid.*

¹⁴ *Ibid.*, p. 15.

¹⁵ http://www.fs.fed.us/ecosystemservices/FS_Efforts/forests2faucets.shtml

¹⁶ Mitchell, J.E., “Rangeland resource trends in the United States: A Technical document supporting the 2000 USDA Forest Service RPA assessment,” USDA Forest Service, 2000.

greatest threats to federal and other forests, with ecological damage from these invasive species described as often “severe, long term, widespread, and difficult to mitigate.”¹⁸ A 2013 USDA report notes that “at least 455 species of non-indigenous forest insects and diseases have established in the United States,” of which 82 are “high impact” insects or diseases.¹⁹ Numerous existing laws and policies govern management of invasive species, federal agencies participate on an Invasive Species Advisory Council, and the USFS and its regions have developed guidance for addressing invasive species challenges.²⁰

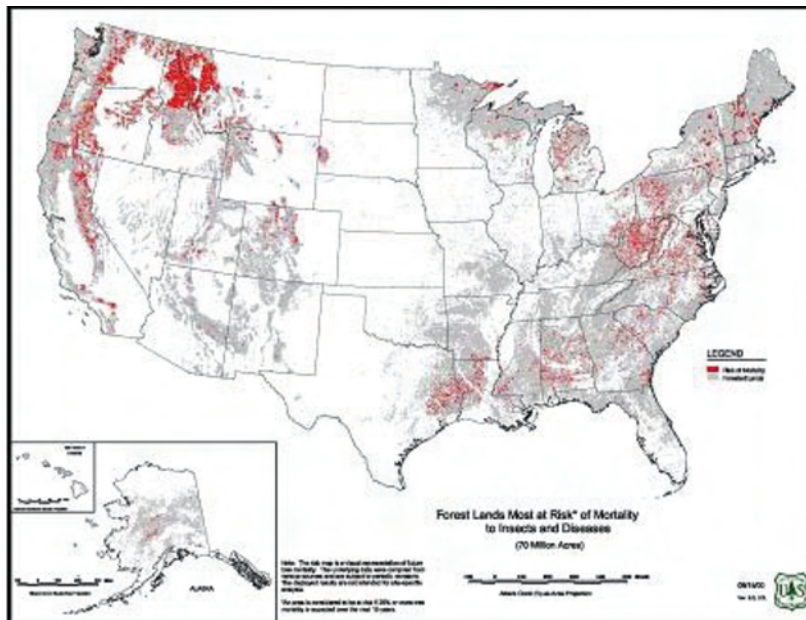


Figure 4-3: Forest Lands Most at Risk of Mortality

Source: USDA Forest Service

Measures of Success: Because many invasive species are extremely widespread, “success” cannot be measured in terms of overall eradication, but, rather, must be measured in terms of evidence of improved prevention and early detection.

Action Items—General Themes: Strategies for addressing invasive species problems include prevention, early detection, control and management, and rehabilitation and restoration—themes all well understood and previously identified by the USFS and other federal, state, and local agencies. While each of these four areas presents challenges, a critical need is in early detection.

Action Items—Specifics: The sheer magnitude and diversity of invasive species challenges suggest that federal agencies must work in partnership with the public and private sectors to address these issues. There are simply insufficient federal funds and human resources to “be everywhere” and “see everything.”

- This challenge suggests an increased role for citizen science and crowd-sourcing uses of mobile technologies for detection and communication, and invasive species detection forestry workshops in all regions of the nation. The very nature of invasive species requires on-going detection efforts: in effect, the work is never done. One insufficiently addressed target is to address invasive species that damage non-commercially significant plants. Such invasive species have generally received lower priority, yet their damages may be extensive and spill over to affect, for example, pollinators (such as butterflies and birds) that are commercially significant.
- USFS and the Endowment should expand work through the Forest Health Initiative (Advancing Forest Health through Biotechnology), which offers perhaps the most promising advance in creation of new, time-sensitive tools to address forest pests. Other agencies, not-for-profits, and for-profits should join with them to speed investments and results to plumb the potential for modern biotechnology.
- USDA Animal and Plant Health Inspection Service, EPA, and the Food and Drug Administration should coordinate to streamline lengthy regulatory pipelines to aid in the advance of modern biotechnology tools to address burgeoning forest health concerns.
- USFS and the Canadian Forest Service should increase collaboration and response to common forest health challenges affecting forests on both sides of the border.

Conclusion

Numerous challenges threaten the health of federal forests. Many of these challenges also affect privately owned forests. Issue-specific measures are needed to address wildland fire risks and invasive species, as well as the broader challenges presented by climate change or loss of forests to urbanization. However, responses to all of these issues share some characteristics: all require collaboration and partnerships; targeted federal investments; and the need to operate at scales sufficient to meaningfully address the problems.

¹⁷ Dix, M.E. and Karen Britton (eds.), *A Dynamic Invasive Species Research Vision: Opportunities and Priorities 2009-29*, USDA, 2010.

¹⁸ Klopfenstein, Ned, et al., “Summary of Issues, Critical Needs, and Future Goals and Future Research and Development,” in *A Dynamic Invasive Species Research Vision: Opportunities and Priorities 2009-2029*.

¹⁹ Diaz-Soltero, Hilda, “Report to the Invasive Species Advisory Council for the Spring 2013 meeting (March 6-8, 2013),” February 7, 2013.

²⁰ See, for example, Forest Service, *Non-native Invasive Species Best Management Practices Guidance for the U.S. Forest Service, Eastern Region*, USDA, 2013.

Forest Policy Issues in the United States

Introduction

The policy and regulatory environment impacting forestland in the U.S. affects the willingness of landowners to make investments in forest management and ultimately the health and long-term sustainability of forests. In addition to government based policies and regulations, there are a growing number of private sector initiatives like forest certification and green building programs that have similar impacts.

Priority Trends and Issues of Concern

While numerous policy issues confront the forest sector in the U.S, three main themes emerge as top priorities. The regulatory environment needs reform, direction, and stability. Certainty in the regulatory environment is critical to the sector making necessary investments to grow. A fair playing field and meaningful incentives to use forest products in the growing “green building” movement will allow for continued success and growth in the sector. Relevant Farm Bill provisions and other incentive-based efforts to reach private landowners need reform and to be reimagined.

Regulatory Challenges: Existing regulations impact the economic competitiveness of the U.S. manufacturing sector. It currently costs 20 percent more to make a product in the U.S. than nine major industrial countries including Germany, Japan, Canada, Mexico, and China. Much of that additional non-labor cost is related to regulations.²¹ Yet there is no comprehensive understanding of the impacts of the regulatory framework governing forest management and the forest products industry.

The costs of major regulations increased at an average rate of 7.6 percent a year since 1998. In the past 30 years, more than 2,000 regulations were imposed on manufacturers, with the Environmental Protection Agency (EPA) imposing the largest regulatory burden (\$117 billion in constant 2010 dollars). The cumulative impact of major regulations between 1993 and 2011 will lower overall manufacturing output by up to 6 percent over the next decade.²² While these air and water quality regulations, species protections, and other requirements serve important public purposes, the details of their design and implementation impose significant costs.²³

Another major issue with the regulatory process is the length of time it takes to establish regulations and the uncertainty caused by not finalizing regulations. Moreover, processes that revisit regulations inject more uncertainty into decisions made by regulated entities.

Several regulatory proposals impacting the forestry sector are currently under consideration, and many others are already in place. The EPA is considering how to regulate biogenic carbon from wood-to-energy efforts and how to handle aerial pesticide applications. EPA recently finished its rule on Industrial Boiler Maximum Achievable Control Technology. Despite a Supreme Court Ruling reversing a lower court’s decision, there is still uncertainty regarding how silviculture will be treated under the Clean Water Act. Compounding these regulatory challenges are the various state-based regulations and various inconsistent federal, state, and local tax policies.

Green Building Rating Systems: “Green buildings” are a growing phenomenon in the building sector. Green building rating systems often provide tools for developers to implement practices in modern construction that are deemed to have lower environmental impacts. However, these systems do not all treat forest products the same and give certain certification systems preference over others. Moreover, some do not go far enough in recognizing wood as a green building material.

More than 90 countries have the beginnings of or have established green building organizations. At the end of 2012, about 40 percent of all the green building projects registered with the LEED (Leadership in Energy and

²¹ *The Manufacturing Institute and Manufacturers Alliance for Productivity and Innovation (MAPI). 2011. 2011 Report on the structural cost of US manufacturing. Washington, DC and Arlington, VA. Available online at <http://www.themanufacturinginstitute.org/Research/Structural-Cost-of-Manufacturing/2011-Structural-Cost-Report/Pollution-Abatement-Costs/~media/48CE1E3848B446ADAFEBF9E945D26FC8.ashx>; last accessed August 21, 2013.*

²² *Bernstein, P., Becker, E., Lane, L., Medeiros, P., Montgomery, W.D., O’Toole, D., Overdahl, J., and Tuladhar, S.D. 2012. Macroeconomic impacts of federal regulation of the manufacturing sector. Washington, DC and Arlington, VA: NERA Economic Consulting and Manufacturers Alliance for Productivity and Innovation. Available online at www.mapi.net/system/files/NERA_MAPI_FinalReport_0.pdf; last accessed August 21, 2013.*

²³ *See, for example, the American Forest & Paper Association summary of these issues, available at: http://www.bipac.net/afpa/AFP_On_The_Issues_One-Pager_July_2013.pdf*

Environmental Design) green building rating program developed by the U.S. Green Building Council were projects outside the U.S., in more than 30 countries.²⁴ LEED has certified more than 9,000 commercial buildings in its new construction standard alone.

In addition to green building rating systems, there are a variety of efforts to incorporate green building concepts into building codes. The International Code Council (ICC) has developed the International Green Construction Code (IGCC). Standards developed by the ICC tend to make their way into local building codes.

In many ways, private-sector efforts at green building certification are quasi-regulatory programs that often lack transparent accountability. For many of these efforts, no organization monitors them or facilitates sector-wide engagement in various processes, and because of anti-trust issues many in the forest sector cannot truly work with customers on solutions.

Currently, local, state, and government agencies are using the most widely acclaimed system, which essentially discriminates against forest products.

Next Generation Farm Bill: The U.S. “Farm Bill” is the primary agricultural policy tool of the federal government. Typically passed every five years, it has various programs that impact the forest sector. These programs are delivered through the forestry, conservation, and several other titles in the Act and have traditionally been a small portion of the funding provided in the entire bill.²⁵

According to the USDA, family farms account for almost 96 percent of the 2,204,792 farms in the U.S.²⁶ There are more than 11 million family forest landowners. Yet Farm Bill funding, including the conservation titles, largely goes to farms. Securing additional funding for family forest landowners is a priority.

Other issues include ensuring that: 1) incentives do not create unintended consequences; 2) forests remain as forests whenever possible; and 3) landowners not remove trees before they are ready in response to an incentive program.

The forest sector does not adequately engage the Natural Resources Conservation Service (NRCS). The NRCS administers important conservation funding and, in many cases, the forest sector is not well represented in decision making processes that prioritize conservation funding and projects. State agencies, in particular, lack the resources to properly engage in these programs.

Another challenge for the forest sector is learning how to approach landowners in better and more sophisticated ways. Landowner outreach has been a top priority for decades, and the forest sector has made little progress in engaging this important group.

Summary—Priority Issues of Concern

While the forestry sector faces numerous policy challenges, as noted above, three issues stand out—the need for regulatory reform; green building rating systems that disadvantage wood and wood products; and funding challenges associated with the current Farm Bill.

Measures of Success: General measures of success to address these three priority issues correspondingly fall into three clusters. First is a stable, streamlined regulatory process with fewer regulatory entities involved. Regulations would yield social benefits exceeding the cost of the implementing the regulations. Another successful outcome would be the selective substitution, where feasible, of private-sector forest certification programs for regulations that govern forest management.

Second is evidence of a social consensus that wood is a preferable, green building material. This recognition would lead to forest products being considered in codes or green building systems on a level playing field with other materials. Specifically, the LEED system would better recognize forest products in its rating systems and would accept all credible certification systems as added value in the rating process. If LEED does not evolve to properly recognize forest products, then government procurement policies relating to green buildings need to

²⁴ See http://en.wikipedia.org/wiki/Leadership_in_Energy_and_Environmental_Design

²⁵ See, for example, Ross W. Gorte, “Forestry in the 2008 Farm Bill,” Updated June 23, 2008, Washington, D.C.: Congressional Research Service.

²⁶ Hoppe R., Korb P., O’Donoghue E., and Banker D.E. 2007. *Structure and Finances of U.S. Farms: Family Farm Report, 2007 Edition*. Economic Research Service/USDA. Available online at http://www.ers.usda.gov/media/201475/eib24_1_1_.pdf.

shift to systems other than LEED. In addition, for green building certification programs, there would be a set of objective measures to evaluate quasi-regulators to provide greater transparency in these various systems and enable stakeholders to better assess their credibility. A third set of measures pertains to the Farm Bill. These measures include evidence of the channeling of more public dollars to forest and related resource-protection priorities; demonstrated capacity for landowner outreach, including leveraging of technology and cost share support so that forest landowners can leverage Environmental Quality Incentives Program (EQIP) funding to meet mutual goals; and evidence that more states have programs that reward responsible forest management and leverage Farm Bill conservation programs.

Action Items—Improving the Regulatory Context: To address regulatory challenges requires coordinated action. Thus, a coalition should be formed. Specifically, the coalition should:

- Track, respond, and coordinate the forest sector’s involvement in the regulatory process.
- Completely document the regulatory framework and its associated costs. To start, this should be done at the federal level, though there may be a desire to pick a few states to evaluate the complexity of multiple levels of governmental regulations.
- Develop viable alternatives to burdensome regulations for agencies, or at least develop model processes to show how regulations could be applied and enforced consistently
- Work to reduce overlapping, layered, and duplicative regulations.

Action Items—Green Building Rating Systems: In order to shift how wood is considered in green building ratings systems and building codes, the forest products industry needs to create an effective coalition to advocate for the IGCC in place of competing systems. There is a need to bring together fragmented efforts under one coordinated initiative. This coalition should:

- Strive to get government entities to move away from standards that do not recognize wood and continue to advocate for inclusion of wood in the USDA bio-based materials program.
- Engage builders and architects in learning about the value of wood as a green building material.
- Prioritize research and development in green building qualities and the potential of forest products and better disseminate these results to promote the value of forest products in green building materials and design.

Action Items—Conservation Funding and the Farm Bill:

- Use private-sector forest certification programs as a tool to leverage conservation funding would provide more certainty that funding is truly reaching identified priorities. For example, the Sustainable Forestry Initiative’s (SFI) Certified Sourcing program provides for significant outreach to landowners.
 - Augment efforts to leverage certification and conservation funding to develop forest landowner cooperatives to acquire group certification and bring additional funding to priorities.
-