

Seeing the Forest Beyond the Trees

**New possibilities and expectations for products
and services from small-scale forestry**

**June 7-11, 2009
Morgantown, West Virginia (USA)**



2009 IUFRO 3.08 Small-Scale Forestry Symposium

Seeing the Forest beyond the Trees:
New Possibilities and Expectations for Products and Services from Small-Scale Forestry

Waterfront Place Hotel, Morgantown, West Virginia, USA,

AGENDA *Sunday Evening, June 7*

15:00-19:00	Registration	Salon A,B,C
18:00-20:00	Ice breaker—hors d'oeuvres and drinks	Salon A,B,C

Monday, June 8

Morning Plenary Session: Contemporary insights and approaches to small-scale forestry
Moderator: Dave Baumgartner

07:30-08:30	Registration	Salon E
08:30-09:00	Symposium opening Welcome Forestry in West Virginia IUFRO 3.08 Small-Scale Forestry	Salon E Dave McGill Randy Dye Dave Baumgartner
09:00-09:30	<i>Small-scale Forestry in the United States: Old Challenges and New Opportunities</i>	Brett Butler
09:30-10:00	<i>Bridging entrepreneurial innovation and public environmental values in small-scale forestry with the "New Public Service" model of public administration</i>	Marie Applestrand
10:00-10:30	Break	
10:30-11:00	<i>Truth, lies, and something in between: Kaleidoscopic thoughts about present role and prospects of beyond-timber products in a highly industrialized context</i>	Christoph Hartebrodt
11:00-11:30	<i>It's the network: How personal relationships shape decisions about private forests</i>	David Kittredge
11:30-12:00	<i>Choosing what to believe about forests: Differences between professional and non-professional evaluative criteria</i>	Roje Gootee
12:00-13:00	Lunch buffet	Salon F, G, and H

Monday, June 8
Afternoon Plenary Session: New and emerging opportunities with small-scale landowners
Moderator: Steve Harrison

13:00-13:30	<i>Small scale forest owners' responsibility – economically, societal and environmental</i>	Lars Lönnstedt
13:30-14:00	<i>Mitigating climate change through small-scale forestry in the US: Forest management practices and market opportunities</i>	Susan Charnley
14:00-14:30	<i>Marketing intelligence system for small scale essential oils industry of northwestern Ontario</i>	Chander Shahi
14:30-15:00	<i>Small scale and amenity focused forestry: Filling a Market Niche</i>	Katie Nelson
15:00-15:30	Break	
15:30-16:00	<i>Filling the small acreage service provider gap with the green industry</i>	Jonathan Kays
16:00-16:30	<i>The future of Pennsylvania's forests: Engaging private forest landowners in their decision making processes concerning their forestland</i>	Joshua B. Gruver
16:30-17:00	<i>Seeing the forests for the tourists: Examining nature-based tourism on family forests</i>	Jessica Leahy
Evening	Dinner on your own	

Tuesday, June 9
Morning/Afternoon/Evening

	<u>Concurrent Session 1:</u> Forest policy for small-scale forestry	<u>Concurrent Session 2:</u> Agroforestry practices and programs in small-scale forestry
	Salon E	Salon F, G, and H
	Moderator: Brett Butler	Moderator: Mike Jacobson
08:30-09:00	<i>An opportunity for small-scale forestry in southern Aragua state, Venezuela: planning and policy issues, Armando Torres Lezama</i>	<i>Made in the Shade: Nontimber Forest Product Social and Knowledge Networks, David Wilsey</i>
09:00-09:30	<i>Property Taxes and Forests in West Virginia: A Historical Review, Jenifer Fortney</i>	<i>Farmer woodlots development in Sri Lanka: Gains, losses, and remedies, Mangala De Zoysa</i>
09:30-10:00	<i>Development phases of forest planning activity in privately owned land: A planning work perspective, Jukka Tikkanen</i>	<i>Utilization of Non-timber Forest Products in Bangladesh, Shiba Kar</i>
10:00-10:30	Break	
10:30-11:00	<i>Leasing State Forest Land to Local People in Bangladesh: Does the policy enhance forest conservation and improve rural livelihood?, Tapan Kumar Nath</i>	<i>Agroforestry Technologies for Pulp and Paper Contract Farmers, Ben Spong</i>
11:00-11:30	<i>The Extent of Implementation of Forest Stewardship Plans in West Virginia, Elizabeth Tichner</i>	<i>Agroforestry systems on small rural properties: a case study in the State of Paraná, Brazil, Vitor Afonso Hoeflich</i>
11:30-12:00	<i>Family forest owners under the spotlight: the Finnish monitoring system, Heimo Karppinen</i>	<i>Adoptability of a complex agro-forestry project for smallholders on a Philippine island, Sonja Vilei</i>
12:00-21:00	Field tour— Walnut Meadows Ginseng Farm; WVU Natural Resources Center; BBQ Dinner; Entertainment with Falling Run Bluegrass Band	

Wednesday, June 10
Morning

	<u>Concurrent Session 3:</u> Perspectives on roundwood and biomass energy from small-scale forests Salon E	<u>Concurrent Session 4:</u> The role of fire in small-scale forestry Salon F, G, and H
	Moderator: Christoph Hartebrodt	Moderator: Teppo Hujala
08:30-09:00	<i>The Economics and Procurement of Wood Biomass for Energy Production in Northwestern Ontario, Md. Bedarul Alam</i>	<i>Homebuyer Wildfire Risk Perceptions Versus Reality in Northwest Montana, Tyron Venn</i>
09:00-09:30	<i>Socio-economic impact of wood based utilization for energy production on small rural communities in northwestern Ontario, Canada, Cassia Sanzida Baten</i>	<i>Products and services from management of fire-adapted forests: The perspectives and practices of family forest owners in Oregon, USA, A. Paige Fischer</i>
09:30-10:00	<i>Bioenergy from private forest sector and its importance Latvia, Lelde Vilkriste</i>	<i>Attitudes of landowners in West Virginia toward the use of prescribed fire as a management tool, Kathryn Piatek</i>
10:00-10:30	Break	
	<u>Concurrent Session 3:</u> Perspectives on roundwood and biomass energy from small-scale forests Salon E	<u>Concurrent Session 5:</u> Education, communication, and innovations in small-scale forestry Salon F, G, and H
	Moderator: Christoph Hartebrodt	Moderator: Julie Urquhart
10:30-11:00	<i>The Revival of Firewood Use in Queensland, Australia, Steve Harrison</i>	<i>Effect of Education on the Adoption of Woodland Management Practices by Family Forest Owners, James E. Johnson</i>
11:00-11:30	<i>Timber Harvesting on the Slovenian Family Farms, Mirko Medved</i>	<i>Backyard Woodlots: Large Scale Education for Small Scale Acreages, Adam K. Downing</i>
11:30-12:00	<i>A Summary of Roundwood Utilization in West Virginia in 2008, Shawn Grushecky</i>	<i>Forestry Flix: Evaluating the Netflix Model for Accessing Urban and Rural Populations in the Central Appalachian Region, Daniel J. Magill</i>
12:00-13:00	Lunch buffet, Terrace Lobby	

Wednesday, June 10
Afternoon

	<u>Concurrent Session 6:</u> Ecosystem services from small-scale forests Salon E	<u>Concurrent Session 7:</u> Emerging opportunities for small-scale forests Salon F, G, and H
	Moderator: Paige Fischer	Moderator: Jenifer Fortney
13:00-13:30	<i>A Review of the Constraints to Small-scale Forest Holders Engaging in Carbon Markets, Paul Dargusch</i>	<i>Forest cooperatives: Vehicles for weaving parcelized forest landscapes for large-scale rural development and forest stewardship outcomes, Scott Bagley</i>
13:30-14:00	<i>Public good delivery in private woodlands in England: An empirically-based typology of small-scale private forest owners, Julie Urquhart</i>	<i>The SAFEST (Sustainable Agro-Forestry Ecological Farming Enterprise, Science and Technology Project) Way, Florence Tarun-Acay</i>
14:00-14:30	<i>Forest carbon offset markets and trends, Gary Kaster</i>	<i>Are smallholders really interested in extension services for non-timber products? Christoph Hartebrodt</i>
14:30-15:00	Break	
15:00-15:30	<i>Small-scale forest management and ecosystem services: Opportunities in the US, Bill Hubbard</i>	
15:30-16:00	<i>Payments for Forest Based Ecosystem Services in the US, Evan Mercer</i>	
16:00-16:30	<i>Benefits of restoring degraded forest lands in Ghana, Tapani Tyynelä</i>	
16:30-22:00	Dinner on the River	

Thursday, June 11
Morning Plenary Session -- New lessons and advances in small-scale forestry
Moderator: Kathryn Piatek

		Salon E
08:30-09:00	<i>Forest landowners' preferences for forestry extension services in North Carolina</i>	Terhi Koskela
09:00-09:30	<i>Making Forestry Sustainable: Recent Israeli Innovations</i>	Alon Tal
09:30-10:00	<i>IUFRO 3.08 Business Meeting</i>	Dave Baumgartner
10:00-10:30	Break	
10:30-11:00	<i>Bridging the gap between physical and social availability of timber: How much wood is really available?</i>	Zhao Ma
11:00-11:30	<i>Woodland owner networks and peer-to-peer learning</i>	Eli Sagor
11:30-12:00	<i>Adaptive consultation: a tool for recognizing family forest owners' amenity values</i>	Teppo Hujala

PRESENTATION ABSTRACTS AND CONTACT INFORMATION (Alphabetical by author)

The Economics and Procurement of Wood Biomass for Energy Production in Northwestern Ontario

Bedarul Alam¹ and Reino Pulkki²

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Abstract: Biomass has been recognized all over the world as having great potential for conversion into carbon neutral bioenergy. The Ontario Government is investigating the possibility to replace lignite coal with renewable wood biomass as feedstock for the Atikokan Generating Station located in northwestern Ontario. A detailed assessment of the economic availability of wood biomass resources is necessary for estimating the economic viability of its use for power generation. Sustainable generation of power requires an accurate estimate of the wood biomass economically available in this region. Moreover, to retain thermal value of wood biomass and to supply biomass feedstock to the power generating station in a sustainable way, an economic storage method is also important. Though studies on biomass storage methods have been done in European countries, these are not applicable in northwestern Ontario because the studies were related to their local situation. There has not been a study on wood biomass storage, which solves the efficient biomass storage problem in northwestern Ontario. In addition, an economical wood biomass procurement system for energy production is necessary to keep the wood biomass procurement business profitable and sustainable in this region. A supply chain management model is being developed: (i) to accurately assess the economic availability of wood biomass in northwestern Ontario by incorporating different forest types, species combinations, and harvesting methods and systems; (ii) to look at options for centralized processing of biomass as chips, ground or pellets; (iii) to determine the methods and locations for biomass storage that can help minimize wood biomass degradation and improve energy yield; and (iv) to minimize wood biomass transportation and processing cost by using a spatial database-heuristic programming and integrated wood biomass harvesting and transportation system. The wood biomass of 58 million ha forest area of Ontario can fulfill at least 27% of the energy requirement of the province. The average energy content of wood biomass is 18 GJ per bone-dry tonne. The average biomass recovery is 21 oven dry tonne per hectare. The optimum time of wood biomass storage in uncovered pile is up to 2 years. The supply chain management model will help estimate the total quantity, quality and cost of wood biomass from the forest that will help in effective and efficient planning of the utilization of renewable forest resources for power generation in Atikokan and other power generating stations in northwestern Ontario.

Bridging entrepreneurial innovation and public environmental values in small-scale forestry with the “New Public Service” model of public administration.

Marie Appelstrand

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Abstract: The forest sector is under increasing pressure to change and reform, and this includes a stronger emphasis on market-based incentives for forestry activities and a search for means to enhance productivity and develop new sources of income. For many small-scale forest owners in the European Union economic diversification has become a necessity, and they are entering a new and different role that combines entrepreneurial innovation with strategic changes, which must coincide with the supporting public policy framework. This development is in line with the growing trend towards deregulation and less state intervention in environmental management, implying a stronger emphasis on new governance structures and market-driven processes. The paper analyzes the transformation of environmental public administration using a model representing three different perspectives on administration's role, values and meaning, showing state action's progressive transition from 'rowing' to 'steering' to 'serving' and facilitating. Finally, a Swedish case-study is used to exemplify a successful 'soft law'-inspired, networks-based, less hierarchical decision-making process.

Forest cooperatives: Vehicles for weaving parcelized forest landscapes for large-scale rural development and forest stewardship outcomes

Scott Bagley, Colin Donohue, and Bryce Oates

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Abstract: Much was made of the 2003 closure of the Sustainable Woods Cooperative in southwest Wisconsin, and many natural resources professionals have written off the cooperative business model as a result. But many other forest cooperatives are still in business or have become established in the meantime, growing steadily and providing a suite of services for hundreds of member landowners and tens of thousands of acres of family forest lands across the United States. In addition to providing stewardship planning services, administering timber sales and forest improvement projects, and in some cases processing and marketing value-added products, forest cooperatives are also showing promise as tools for maintaining stewardship continuity across generations, as the older generation of landowners passes on their land to heirs.

This presentation will provide an overview and examples of the ways cooperatives in all regions of the United States are bringing more landowners into forestry who were not resonating with the messages and brands offered by industry and government, coordinating cross-boundary projects to enable treatment of small-acreage parcels otherwise not accommodated by the traditional forest industry, and generating efficiencies that enable FSC certification for small-scale forest operations. Additionally, the authors will describe how cooperatives are developing local workforces that are tailored to meet the challenges of parcelized landscapes and the evolving demands of the growing number of new landowners. They will also provide examples of cooperatives providing stable job opportunities for rural communities and facilitating peer-to-peer learning between landowners. Finally, they will describe the growing network of forest cooperative leaders who are working together to share lessons learned and compare notes of their progress, while developing a policy voice for small-scale forestry at local, regional, and national levels.

Socio-economic impact of wood based utilization for energy production on small rural communities in northwestern Ontario, Canada.

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Abstract: Wood biomass is a major component of the renewable energy and fuels picture for Canada. Wood biomass has great potential for conversion into renewable bioenergy and to help mitigate climate change. This study deals with the socio-economic aspects of bioenergy development. Normally, the socio-economic impact of bioenergy can be measured in terms of economic indices, such as employment, monetary gains, and GDP. Recently some pulp and paper mills in northwestern Ontario have initiated bioenergy plants to generate heat and electricity for their use. The Ontario Ministry of Energy is investigating the possibility of replacing lignite coal with renewable forest biomass as feedstock for the Atikokan Power Generating Station (AGS), as well as at the Thunder Bay Generating Station (TBGS) located in northwestern Ontario. The AGS has already successfully tested 100% wood biomass (wood pellets) feedstock instead of coal. This study will evaluate the socio-economic impacts of wood biomass utilization for energy production in four areas of northwestern Ontario: Atikokan, Fort Frances, Kenora and Thunder Bay. It will examine the impacts of wood biomass utilizations on job creation, business development, income improvement, and well-being of the people. It will develop models to improve the bioenergy sector of the northwestern Ontario.

Small-scale forestry in the United States: Old challenges and new opportunities

Brett J. Butler

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Abstract: Forestry in the United States, as we think of it today, began in earnest in the early 1900s with Gifford Pinchot, Carl Schenk, and the other American forestry pioneers. The focus of public policies, and social scrutiny, was on public lands and so it stayed for the better part of a century. By the close of the twenty-first century, the focus was broadening and more people in forestry and land conservation were paying attention to private forest lands, and to private forest land owners. The general public, on the other hand, still believes most forest land is publicly owned and this is a major obstacle that needs to be overcome. In reality, 56 percent of the 304 million hectares of forest land in the United States are privately owned and of that, nearly two-thirds is owned by families and individuals – i.e., small-scale forest owners.

There are over 10 million family forest owners in the United States and they have diverse objectives, needs, and limitations that we are just beginning to fully understand. Traditional forest management practices are often inappropriate for the average landowner because their holdings are too small, the practices conflict with their ownership objectives, costs are prohibitive, and many lack basic knowledge about management.

New opportunities for family forest owners are emerging, such as carbon sequestration and biomass harvesting. Unfortunately, many of these new tools are still immature and may still be inappropriate for many forest owners. These failures are, at least in part, driven by the disconnect between forestry and forest land owners.

To deal with this divide, we need to develop tools and policies that are appropriate for the land owners – we need to see the forests through their eyes. Loss of forest land, timber supply, protection of endangered species, protection of drinking water, mitigation of forest health issues – these will all require the active participation of family forest owners. Will forestry continue to use old tools to deal with old problems or will we create the new tools to meet the new challenges?

Mitigating climate change through small-scale forestry in the US: Forest management practices and market opportunities

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Abstract: Family forest owners in the U.S. can be proactive in helping mitigate global climate change by adopting forest management practices that increase carbon sequestration. They may receive financial compensation for doing so by registering and trading carbon offset credits for forestry projects that qualify in existing carbon markets. Providing an income stream to forest owners through carbon offset trading not only rewards them for contributing to climate change mitigation; it can create an incentive for sustainable forest management, and help slow the conversion of forest lands to development.

This paper provides an overview of the current state of scientific knowledge regarding what forest management practices are best for optimizing carbon uptake and preventing carbon release from forests. This information is useful for helping forest owners assess whether carbon-friendly forest management is consistent with their other forest management goals and practices, and realistic for them to adopt. It then reviews current and emerging opportunities for family forest owners to participate in carbon markets through forestry in the U.S., and addresses some of the potential challenges to participation.

The absence of federal climate change legislation in the U.S. and of mandatory emissions trading programs means that current mechanisms for rewarding landowners who exhibit carbon-friendly management are limited and not very lucrative. However, federal legislation is on the horizon, and policy about what kinds of forest management practices to reward, and how, is evolving. We conclude by discussing how policies and carbon markets can best support the participation of small-scale forestry in climate change mitigation.

A review of the constraints to small-scale forest holders engaging in carbon markets

Paul Dargusch and John Herbohn

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Abstract: This article reviews the constraints to small-scale forest holders from developed and developing countries engaging in both regulated and voluntary carbon markets through the supply of emissions offsets from both planted and natural forest-based activities. The authors assert that three types of issues feature most prominently in constraining small-scale forest holders from fully engaging across the carbon market value chain. These constraints are that small-scale forest holders typically: (1) lack sufficient technical skills across the gamete of forestry, commercial and legal compliance requirements to engage in carbon markets; (2) cannot afford the transaction costs involved in engaging in carbon markets; and (3) lack marketing skills and access to networks of buyers that should facilitate maximum revenue gain from carbon sales. Opportunities for small-scale forest holders and policy-makers to address these constraints are discussed.

Farmer woodlots development in Sri Lanka: Gains, losses and remedies

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Abstract: Shifting cultivation was a traditional form of agroforestry practiced in Sri Lanka where forest and crops alternate in a temporal sequence. During the past several decades shifting cultivation was perceived as primitive, unproductive and exploitative system causing environmental degradation. The national forest policy was amended with community forestry in 1980s and established farmer woodlots (FWLs) as a major component of community forestry development projects. The FWL was considered as a promising agroforestry model and consensus-based approach to rehabilitate the degraded lands under shifting cultivation. This paper reviews the gains and losses of the transformation of forest lands from shifting cultivation to FWLs, and proposes possible remedies to restate the foregone-benefits. Major economic and social benefits experienced through the transformation are critically analyzed. Customary rights enjoyed by farmers for their traditional shifting cultivation lands have been reinstated by tenure arrangements of farmer woodlots. The FWLs presently provide valuable timber with ample economic status for the farmers by virtue of returns from commercial tree plantings as conservation based, market oriented production system. However, the FWLs have begun to threaten the sustainability of forest livelihoods. The farmers in a village have lost their traditional forest lands which provided them with variety of domestic needs. Presently, farmers have to search alternative small-scale forest common in addition to the FWLs within the village to satisfy their foregone benefits. Substantial extent of government forest lands in the villages would be sustainably managed as forest commons under the community forest governance.

Backyard woodlots: Large scale education for small scale acreages

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Abstract: Land parcelization in the Eastern United States is resulting in more landowners and smaller holdings. These small acre properties are increasingly important to the environmental health of natural systems. Seventy-three percent of Virginia's privately owned forestland is in ownerships of 10 acres or less, yet little assistance has been available to them. Additionally, we find most small acre owners are first-time landowners with little knowledge of natural systems. There is general agreement that planning and professional assistance lead to better forest stewardship; however, smaller acreage owners are even less likely than larger acreage owners to have written plans or seek assistance.

Locally initiated educational programming using a self-guided planning tool specific to small acreage owners has ushered hundreds individuals, families and Extension Volunteers through the planning process and resulted in high rates of written plan completion (average of 80%). According to exit and follow-up evaluations, most participants have implemented one or more practices based on their self-designed plan to improve and/or expand natural areas on their property. The program materials and design are an effective tool to excite, encourage, and affect stewardship on small acreages. Lessons learned from these interactions with landowners are allowing us to fine-tune outreach methods for this underserved and unique audience.

A parallel issue surrounding small acreage ownerships is the lack of service providers. While some landowners want and are willing to pay for services, related industries and service providers are slow to respond. The work with small acreage landowners is leading to programs to create outreach efforts in the Mid-Atlantic area to potential services providers.

Products and services from management of fire-adapted forests: The perspectives and practices of family forest owners in Oregon, USA

A. Paige Fischer

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Abstract: The severe fire events of the past decade in the American West have led to an emphasis on management to reduce hazardous fuels and restore fire-adapted forests on federal and nearby private lands. Yet markets for much of the material from thinning are lacking. Creating new opportunities for products and services generated through thinning may provide financial incentives for restoration. Family forest owners are especially important to consider in such policy directions because they hold 12% of forest land in the western United States and manage for social, economic and ecological goals.

This paper presents findings from an ongoing two-year study of how family forest owners in the ponderosa pine ecosystem of eastern Oregon address the risk of wildland fire on their lands. We draw on spatial data to describe the conditions on their lands, and we use interview and survey data to explain how they view and manage fire risk, and perceive opportunities and constraints for restoration. In particular we explore the relationship between owners' management practices, attitudes toward risk, ecological knowledge and views on cooperating with public agencies and other ownership groups. The findings will help federal and state agencies improve program offerings and design new policy instruments.

Property taxes and forests in West Virginia: A historical review

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Abstract: West Virginia has a history of under assessed land values, which led to financially handicapped local governments, and hefty tax burdens on local citizens. Local property tax revenues have always been insufficient for local government administration throughout the history of the state. Though the state government has made several attempts to correct underassessment problems in West Virginia, these measures have been largely unsuccessful. The West Virginia legislature ratified the forestry amendment in 1946 to allow special taxation of forest land, but due to the underassessment problem a policy to carry out special forest taxation was not enacted until 1991, when the West Virginia legislature ordered a state wide reassessment of all property in the state. Managed Timberland was created in anticipation of the expected drastic change in property assessment values. Since the enactment of Managed Timberland no detailed research has been conducted to determine the benefits of the policy to the state or to private forest landowners. Managed Timberland has low enrollment rates and may be an unfair shift of the tax burden to non-forest owners. Tax assessment needs to be fair, impartial, and equal across all locations in the state, and easy for landowners and tax assessors to understand. A detailed study of Managed Timberland is needed to determine the effectiveness of the policy.

Choosing what to believe about forests: Differences between professional and non-professional evaluative criteria

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Abstract: Interviews with 109 stakeholders revealed that many natural resource management professionals may not correctly anticipate how forest owners evaluate new forest management information. Using the qualitative “grounded theory” research method, we asked our interviewees to discuss their information sources, preferences, and reasons for preference. Most professionals chose and evaluated new information on the basis of established standards of scientific credibility such as peer review or the professional reputation of the individual(s) and institution(s) conducting the research or publishing the information. Most professionals expected forest owners would do the same. Forest owners with non-professional backgrounds, however, were often unfamiliar with or unimpressed by such credentials. Instead, many of these forest owners used a very different evaluative screen. Willingness to adopt information was greatly influenced by the forest owner’s social impressions of the individual(s) delivering it. When professionals pressed for an ‘expert to non-expert’ relationship or did not establish a mutually respectful interpersonal learning atmosphere, many forest owners resisted not only the information provider, but also the information delivered. We link these findings to adult learning theory, and demonstrate that the natural resource professionals most effective with forest owners were those who provided classic elements of a good adult learning environment. We conclude that an improved understanding of the fundamentals of the adult learning process can be expected to materially enhance the effectiveness of natural resource professionals in information exchange with forest owners.

A summary of roundwood utilization in West Virginia in 2008.

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²USDA Forest Service, Princeton, WV

Abstract: West Virginia currently has the second highest proportion of forestland in the United States. This resource supports a forest products industry that adds \$5 billion to the state's economy each year. Roundwood is harvested in every county of the state and supports a diverse primary and secondary forest products sector. The objective of this research was to investigate the utilization of hardwood trees harvested in West Virginia. Utilization and market data were collected on thirty active timber harvests in 2008. Results indicated that loggers transported materials from WV timber harvests to an average of 3.5 roundwood markets. The main markets supplied were sawlog and softwood pulp. Differences exist in the characteristics of roundwood markets utilized by logging operators in 2008 compared to earlier studies. Changes in resource availability and market opportunities likely created these differences.

The future of Pennsylvania's forests: Engaging private forest landowners in their decision making processes concerning their forestland

Joshua B. Gruver, James C. Finley, A.E. Luloff, and Allyson Muth

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Abstract: Forests dominate Pennsylvania covering nearly 60 percent of its landscape. An estimated 750,000 private forest landowners (PFLs) hold 70 percent (more than 12 million acres) of this forest. The number of PFLs increases each year as landowners divide and sell or gift their forestland. As forestland ownerships increase and change, fragmentation increases the potential for urban development. The decision making processes PFLs engage when planning for their forestland's future are not well understood.

Recent state-wide survey results indicate over 52 percent of PFLs plan to leave forestland to more than one heir. Further, approximately 9 percent are planning to subdivide, 27 percent are planning to sell, and 11 percent expressed interest in conservation easements. Using key informant, phenomenological, semi-structured interviews, and a statewide survey we explore PFLs motivations and decision making processes as they plan for the future of their forestland. We provide analysis on their planning processes and discuss themes derived from their actions as they decide to either, subdivide and sell forestland, leave forestland to heirs, sell or donate conservation easements, or commit to none of these options.

To provide context and a richer understanding of how PFLs make decisions about their forestland, we approached those who had recently subdivided and sold forestland, gifted forestland, sold conservation easements, or had not yet committed to any plan in three counties and asked them to tell us about their experiences. Study counties were categorized as being highly developed, moderately developed, or rural. This paper presents preliminary data from these interviews. Findings suggest PFLs typically own land for amenity values (aesthetics, recreation, solitude), but recognize economic needs become paramount at certain points of their ownership. In addition, PFLs have several misconceptions about conservation easements, including loss of control of the land in easement and increased public access if the land is sold to a trust or conservancy. Possible implications of these findings are advanced.

The revival of firewood use in Queensland, Australia

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Abstract: Wood fires were used widely for cooking in Australia, particularly in rural areas, up to the time of widespread electrification in the 1950s. Currently there is a resurgence in interest in use of firewood for winter home heating, driven in particular by increasing electricity prices and growing environmental consciousness, and reflected in Australia by the decision of the Commonwealth Government to sign the Kyoto Protocol in 2007. New stove technology has led to greater thermal efficiency and reduced emissions from woodfuel. Under current prices, production of eucalypt timber for firewood can compete strongly with production of sawlogs in terms of enterprise profitability. However, there have also been strong objections to extraction of woodfuel from native forests, where a 'lockup mentality' appears to dominate. This paper reviews the growing use of woodfuel internationally, and the perceived advantages and limitations relative to fossil fuels. A case study is reported of fuelwood use in south-east Queensland. Growing use of woodfuel is noted, but also mixed attitudes of government and environmentalists, and as yet limited financial benefit for tree growers.

Truth, lies and something in between--Kaleidoscopic thoughts about present role and prospects of beyond-timber products in a highly industrialized context

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Abstract: For centuries forest activities have focused mainly on timber-production, predominantly for owners but for society as well, due to the fact that forestry contributed directly and significantly to the gross domestic product. This focus on macro-economic key-figures decreased dramatically after 1900 and particularly after World War II. With regard to the micro-economic sphere, forestry was a profitable business up until the mid-sixties. After this time cost-price squeeze caused a severe economic crisis and led to decreasing profitability. Catastrophic events showed the vulnerability of this single product policy. Within these framework conditions an intense discussion about the valuation of beyond timber products started.

Considering this framework the paper highlights –firstly the financial relevance of beyond-timber products during the last three decades. An analysis of the present sensitivity of profitability to non-timber revenues and a prognosis about the potential impact of these new forest products is given. Both are based on the Bayesian Belief Network approach, informed by accountancy network data. At a glance it can be stated, that the significance of beyond timber products remained low up until the present day and, moreover, is expected to remain low during the next decades.

Secondly, the paper raises the question, as to whether the perception that small-scale management is mainly dedicated to timber production is correct. The paper shows that small scale forestry is in most cases embedded in enterprises, which run various kinds of economic activities. Therefore the potential economic role of beyond timber products has to be discussed from different point of views within different size classes and ownership types.

Finally a contribution is made to the question, as to whether the starting point of the beyond timber product discussion, the low macro-economic importance, needs to be redefined. More and more evidence shows that even in the context of a highly industrialized country the wood cluster, which includes the whole wood-production-chain from forests to high-end products, remains important.

Finally we argue that new beyond-timber products can be an important supplement for most forest enterprises. Despite this fact, neither from a micro- nor a macroeconomic perspective, can a complete shift to non-timber products be expected or recommended.

Are smallholders really interested in extension services for non-timber products?

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Abstract: The societal demand for non-timber products in South-Western Germany is high. As Germany is densely populated, both recreational and environmental aspects play a relevant role. Nevertheless, it is common knowledge that non-timber products have to be split into outcomes from forests, related to the mere existence of forests and effects from man-made forest management activities. Therefore, one has to be aware that only some of these benefits for society are a result of active forest management. Until now most attempts to develop marketable non-timber products in Germany have failed, at least partially. 90 to 95% of revenues from forest holdings are from timber products. Recent studies indicate that forest owners are aware of the heavy use of their forest, but don't perceive too many restrictions arising from this societal use. Corresponding with this, forests are - in the eyes of smallholders - still mainly dedicated to timber production. Under this framework an explorative case study was carried out in which we assessed the interest of smallholders in extension services for traditional and new non-timber products. A number of new service offers were developed and intensively marketed. We compare the demand for new services with that for traditional consulting e.g. timber marketing advice, assistance with timber grading and silvicultural treatments. We argue that the interest of smallholders is still focused on traditional consulting offers and that only a small number of forest owners are interested in new extension services. A first appraisal of the interdependencies between different types of forest owners and demand for extension services is given.

Agroforestry systems on small rural properties: a case study in the State of Paraná, Brazil

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Abstract: According various authors, the term agroforestry system refers to sustainable land-use systems in which woody perennials are grown in association with herbaceous plants, and/or livestock, generating ecological and economic interactions between the trees and the other components of the system. It is recognized that although the agroforestry system concept is well known and has been applied in many geographic areas throughout the world, its potential has not been fully explored. Over the years, this system has been virtually abandoned by their complexity, leading to monocultures. It was noted, however, the need to rescue it in the light of the numerous benefits. This study was conducted in the State of Paraná, located in southern Brazil, which is a major supplier of summer grain, poultry and forest products. In the state, 86% of areas are considered small farms (area under 50 ha). In these areas there is a need to maximize the use of land and income through sustainable activities, making them economically, where the agroforestry systems are considered an interesting alternative of land use. The State Government of Paraná has encouraged over the past five years the implementation of agroforestry systems on small rural properties. The objective of this research was to examine the history, planning and monitoring the agroforestry systems, and the opportunities and challenges generated to the farmers.

In terms of methodological procedures, data collection consisted of a literature search for the context and theoretical framework as well as interviews, questionnaires and application technicians and producers in the sample areas. It was observed that the environmental gain and income of farmers increased because of the consortium, especially among the growing activities of forest to agriculture or livestock. Furthermore, areas associated with forest crops, so a microclimate with lower temperatures and higher humidity, have a lesser impact in the dry season, reducing the use of supplementary food and providing greater thermal comfort for cattle raising. However, some aspects were found that need to be better analyzed, such as: definition and integration of agroforestry systems in forestry legislation, establishment of technical and economic parameters driving the system, enabling the financing of the activity; the need for hiring and training more the *technicians* of the *extension services*, acting directly in the municipalities, and expanding the network of the system by the better understanding of the producers, about their economic and environmental benefits.

Small-scale forest management and ecosystem services: Opportunities in the US

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Abstract: Intergenerational land transfer, exurbanization, and large-scale land divestment by forest industry are a few of the reasons for why forestland is becoming increasingly parcelized and fragmented in the United States. At the same time, owners of these smaller parcels of fragmented forestland are facing increased challenges including increasing land values, higher taxes and fewer management options. Within the last 5 to 7 years, however, an innovative concept has surfaced that may provide opportunity for these forest landowners. This concept, known as ecosystem services, recognizes the social, economic, and environmental value of natural assets by putting a “market value” on them. The idea is that markets will arise for these services. Examples of possible markets include carbon, water, wetland, endangered and threatened species, and a host of others. This paper will explore and synthesize both the financial opportunities and barriers that may exist with regard to quantifying, valuing and marketing ecosystem services on small non-industrial forests (less than 100 acres) in the United States. In addition, this presentation will present information on the newly formed USDA Office of Ecosystem Markets and Services.

Adaptive Consultation: A Tool for Recognizing Family Forest Owners' Amenity Values

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Abstract: Family forest owners associate multiple values with their woodland property. Without underestimating the monetary utilities that forests frequently produce, owners also gain many emotional amenities from their forests. This paper suggests that serving smoothly owners' post-productivist views and multi-faceted preferences is a key to increasingly recognize, respect, and take into account their forest-related amenity values. Practical examples of alternative decision support service options illustrate how different qualitative and quantitative methods can adaptively be tied together and contextually tailored for each owner. For example, a communicative forest management planning procedure may contain a value-focused situation analysis discussion, a numerical preference rating task, a vivid field trip with a consultant, and an interactive evaluation of alternative plans via internet. The empirical results of recent research on family forest owners in Finland suggest that the first level of adaptation, a priori segmentation of owners as consultation customers, may be based on owners' decision-making environment and ownership strategy. In turn, more detailed preferences can be taken into account within the service chains through customer empathy and social learning, as the second level of adaptation. The overall conclusion emphasizes the role of systematic feedback management and organizational learning in developing owner-driven consultation service schemes for small-scale family forestry.

Recreational value trading provides a new source of income for forest owners

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Abstract: Forests offer many products and services to the society around them. The diverse forest landscape is also an attractive environment for tourism and leisure activities. Forestry not only produces forest products, but is also a prerequisite for preserving a living forest landscape. At present forest owners are often assumed to provide this opportunity free of charge. The increasing commercial-based nature tourism and economic value related to the landscape require new tools for landscape management in forestry. These tools should reconcile needs of both forest owners and others enjoying and benefiting from the recreational values.

Recreational Value Trading (RVT) model launched by MTK Finland (The Central Union of Farmers and Forest Owners) and its associated model contract could be used by all parties interested in buying and selling recreational forest values. It could also be used in countries with various kinds of forest types or different forest-ownership structures. This model also provides for forest owners an alternative way to obtain income from multifunctional forestry and respond to the diverse needs of society. According to the RVT proposal, a municipality, recreational area association or even the State would be able to purchase the recreational value of a specified piece of forest area for a fixed period. The forest owner would commit himself or herself, for an agreed period of time, to manage the selected forest areas so that they would meet the needs of recreation especially well.

The recompense will be determined according to the market and its amount will be agreed by the forest owner (vendor) and the purchaser of the recreational forest value. Vendor or purchaser may initiate the recreational value trade and contact the other party. Actively contacting forest owners is particularly required from persons or parties interested in purchasing recreational value. On a local level, forest owners' organisations could be a natural source of information for matters pertaining to recreational value trading and through these the potential buyer will have an opportunity to contact the forest owner. Forest owners' organisations could also assist the forest owner in matters relating to securing the trade, such as assessing the factors relating to the recreational value.

Effect of education on the adoption of woodland management

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Abstract: Family forest owners are an important force in the forest sector in the U.S. The Nation's 10.4 million family forest owners collectively own 104 million ha, or about 35 percent of all forest land in the country. Accordingly, there have been many established programs to assist family forest owners with managing their lands to better provide both economic and ecosystem services to the public-at-large. We conducted a survey of 3,435 family forest owners in Virginia to determine the effect of voluntary educational programs, offered through the Cooperative Extension Service, on the adoption of a suite of woodland management practices. Respondents were classified as not having attended any educational programs, having attended minimal programs, or having attended short courses offered through the Virginia Forest Landowner Education Program (VFLEP), designed specifically to motivate landowners to adopt woodland management practices. Respondents not attending educational programs adopted at the rate of 75%, those attending minimal programs adopted at a rate of 83%, and VFLEP respondents adopted at a rate of 94%, a significant difference. In addition, 41% of VFLEP respondents had a written management plan, as compared to only 12% of those respondents who did not attend any educational programs.

Utilization of non-timber forest products in Bangladesh

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Abstract: The literature suggests that there is a strong relationship between non-timber forest products (NTFPs) and livelihoods of forest-adjacent communities. These forest resources have potential for meeting conservation and development objectives. The argument is that NTFPs can provide sufficient income and other livelihood benefits that reduce the need to convert forest to other uses. Very few studies in Bangladesh have looked at this issue. This study focused on villages in the Chittagong Hill Tracts of Bangladesh where this diverse NTFPs sector is overlooked and discounted in national level forestry programs. Field data were collected through participatory methods including in-person household and market surveys focusing on five types of NTFPs. Initial results show that although a large portion of the forest adjacent communities depend on these NTFPs for their livelihood, including subsistence income, there is lack of market knowledge and commercialization initiatives. Emerging issues include the need for small scale entrepreneurship development initiatives, better market access with information and support, and policy and land reforms.

Family forest owners under the spotlight: the Finnish monitoring system.

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Abstract: The importance of non-industrial private forestry varies by country. From the perspective of forest policy, the overarching issues in family forests are roundwood production and timber supply, and maintenance of biodiversity. In the future, carbon sequestration, bioenergy production and recreation services will be in greater demand in private forests. Requirements for efficient monitoring of forest owners and their behavior are continuously increasing. This paper describes the Finnish monitoring system for private forestry.

The first significant step toward creating a permanent monitoring system for Finnish family forestry was taken in 1975, and it was followed by another study during 1980–86. The third round of data collection was conducted in 1990 followed by the latest country-wide survey in 1999. The next mail inquiry will take place in the beginning of 2009. The sampling frame is based on land registers. The survey data will be supplemented by information on forest owners' income, as well as holding and owner characteristics from land registers. Forest characteristics such as forest age distribution and timber volume are important for analyzing forest management behavior. Forest resource data will be acquired from Forestry Centers, which are regional extension units responsible for forest management planning. Also obligatory forest use declarations concerning commercial fellings will be available.

The forthcoming survey will be based on three subsamples using especially designed questionnaires. The basic items will be the same in each questionnaire type, enabling both countrywide and regionally representative estimates of family forest owners' demographic characteristics and behavior. In addition, follow-up studies utilizing the first round of data collection will be conducted. This arrangement will provide data for several research topics at the same time and serve the basic function - a comprehensive review of Finnish private forestry. The specific studies using subsample data and the follow-up studies concern policy means for voluntary biodiversity protection, forest owners' attitudes and intentions toward tending of young stands, interactive forest management planning, and factors affecting forest owners' timber sales decisions.

Backyard Woodlots: Filling the small acreage service provider gap with the green industry

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Abstract: Woodland owners holding less than 10 acres own 59% of the forested properties in the Eastern United States. While the acreage represented by these owners is relatively small, the sheer numbers of individuals in this group should attract the attention of natural resource related businesses. As parcelization continues to result in more small acreage properties and landowners, the demand for on-the-ground service providers can only increase. Private consulting foresters and loggers, however, have been slow to recognize and respond to this new business opportunity where timber is not a major output. Green industry businesses such as arborists and landscape contractors, however, presents an opportunity to train-up a new cadre of natural resource service providers equipped and already connected to small acreage clientele. A survey of small acreage landowners suggests that there is a likely market for service providers able to apply forest management principles on small acreage ownerships (Kays, 2008 unpublished data). Like homeowners, some landowners are do-it-yourselfers while others prefer to “hire a professional.”

Surveys of potential service providers from the green industry were initiated in 2007 and 2008 to better understand the readiness and interest of potential providers in response to small acreage needs. The survey asked potential service providers what (from a list) woodland management options they presently provide, their interest in training related to small woodlot management and basic demographic data. The results indicated differences in the kind of woodland services arborists and landscapers would offer and an indication as to the readiness of various industries to fill this service niche. The results have also been used to design and deliver educational programs targeting the green industry as well as publish trade magazine articles. Material has also be developed to help market small woodlot management services

The void of management on small acreage woodlots is a growing issue and opportunity. Woodlot owner education is part of the solution but not the only. A “chicken and egg” approach of simultaneously educating landowners and equipping service providers is necessary to provide a comprehensive approach. This presentation will share results of the potential service provider survey as well and lessons learned in the field through program design, delivery and evaluation. Suggestions will be offered on the types of program approaches that appear to resonate most effectively. This presentation will compliment *Backyard Woodlots: Large Scale Education for Small Scale Acreages* submitted by A. Downing.

It's the network: How personal relationships shape decisions about private forests

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Abstract: In many parts of the United States, roughly 40% of forest is in non-industrial, private ownership, and in much of the eastern US, as much as 75% of all forest is in this category. Nationally, surveys and participation rates suggest most owners do not participate in traditional management or technical assistance programs, nor do they obtain professional advice prior to a management decision such as the sale of timber. Based on this knowledge of what most landowners do not do, we posed a relatively simple research question: To whom do landowners turn when making decision about their lands?

We combined information search and processing theory and egocentric network analysis to begin understanding the role of others (i.e., alters) in landowner (i.e., ego) decision-making. We conducted structured interviews with 47 landowners who had made a significant management decision about their land in the last two years (i.e., timber harvested, or grant a conservation easement). Based on these data, we determined the extent of landowners' egocentric networks related to their land, and in particular to their decision, and evaluated each alters' role in the decision-making process. Furthermore, we determined the satisfaction these landowners had with their decision. Continued analysis will measure the relationships among satisfaction, landowner characteristics, and egocentric network characteristics.

Preliminary results indicate that there appear to be networks of people around woodland owners, and a subset thereof involved in a specific decision and its implementation. In addition, owners seemed more satisfied with the easement decision, than those who had made a timber sale decision, and, were more confident of the people involved in their easement decision, than those others involved in the timber sale decision. This is despite the fact that a conservation easement is a more serious and complicated legal, financial, and potentially intergenerational step compared with timber harvesting. Peer landowners and so-called 'locals' appear to be more significant sources of information in these landowner networks than relatives or neighbors.

Further work is needed to clarify the potential role of social networks in landowner decision making and their application in outreach methods to promote or assist in conservation, especially at spatial scales that exceed individual properties. Understanding social networks might suggest successful alternatives to connect owners with professionals. More study is needed to confirm these preliminary results, and further explore the knowledge transfer via these informal paths.

Forest landowners' preferences for forestry extension services in North Carolina

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Abstract: The sustainability of forests relies on millions of non-industrial private forest landowners who make the decisions that affect the management of the land. The purpose of the study is to examine landowners' perceptions on the importance of different topics about which Extension Forestry currently offers information and education; and to describe landowners' preferred distribution channels for information and educational material. The data were collected by a mail survey sent to 2600 non-industrial private forest landowners in 13 North Carolina counties in 2005.

Three priority groups were identified among landowners regarding the importance of different forestry extension topics. Timber producers (56%) emphasized the topics related to economic utilization of the forest. Landowners in the group Environmentally oriented (one fifth), stressed only non-timber attributes. The third group, Producers of other goods than timber (one fourth), was interested in the topics related to alternative uses of forest.

Most landowners considered mailed material as an appropriate information delivery method. Also short educational programs were accepted by more than half of the respondents. Four distinct groups could be identified: passive landowners were not interested in any form of information; traditionalists preferred to receive all information by mail; users of modern methods preferred to use internet-based services and long-distance education; and the fourth group strongly emphasized participatory methods. The results show that there is a need to offer a wide range of forestry extension services and education that suit to the varying conditions and objectives of individual landowners.

Seeing the forests for the tourists: Examining nature-based tourism on family forests

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Abstract: This presentation will discuss possibilities for forest-based entrepreneurial tourism enterprises (FBETE) on family forest lands in the Northern Forest Region (Maine, New Hampshire, Vermont, and New York). FBETEs are a specific type of micro-tourism enterprise or family-owned business in the nature-based tourism arena. We framed our research around the micro-tourism enterprise and family-owned business literature, which is a novel approach to understanding family forests. Semi-structured interviews were conducted with FBETE owners in the summer of 2007. Specific aims of our research were to assess the characteristics, motivations and goals of owners, to determine risks and challenges encountered in the business, to ascertain benefits obtained from the business, and to elucidate owner's views of success. The purpose of research was to gain a foundational understanding of these enterprises in order enlighten researchers, policy-makers, extension agents, forestry professionals, tourism planners, and potential FBETE owners.

FBETE owners were typically in their late 40s and were life-long residents of their respective states. The personality characteristics that were reported as being helpful in operating the businesses centered: drive, sociability, and innovativeness. Several motivations for starting an FBETE arose from this research. Prevalent motivations were personal interests or hobbies, a desire to share knowledge or experience, borrowed or creative visions, and to obtain a preferred lifestyle and reconnect with land. Commonly cited initial goals of FBETEs included to educate the public, to reconnect the public with nature, and to increase visitation to the business. Risks encountered at business start-up were typically related to financial issues. Challenges most frequently stated included competition, lack of community support, and insufficient training. Benefits that micro-tourism enterprise family forest landowners obtain have been notably overlooked in previous literature. Those often mentioned include customer appreciation, personal enjoyment and satisfaction, working at home, and meeting new people. Notably, all FBETE owners measured success through personal happiness and satisfaction. All FBETEs felt that they were success. Future goals for owners included improving the business and becoming sustainable.

Family forest landowners can face challenges in meeting their objectives, achieving their goals, and maintaining ownership. Recommendations from this study include increasing community support of FBETEs to assist in the stimulation of rural economies. Also, tourism planners can help FBETEs by marketing them on government tourism websites and by support rural entrepreneurial development policies. Extension agents and forestry professionals should offer courses on financial planning, technology, and marketing to FBETEs as well as developing an educational website.

An opportunity for small-scale forestry in southern Aragua state, Venezuela: planning and policy issues.

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Abstract: Proper governance, decentralization and landscape management have become emergent issues in the search for poverty alleviation and sustainable management of forest ecosystems. For a better understanding of these challenges, integrated approaches are urgently needed. According to this, small-scale forestry is considered in many countries as an option to provide goods and services that cannot be fulfilled through industrial and large-scale operations. In southern Aragua state, Venezuela, an area regarded as a high priority center for local and national development, through local knowledge, the use and production of wood-based goods has become a traditional socioeconomic activity for many years. Deforestation and strict protection policies for *Samanea saman*, ranked as a vulnerable tree species, have considerably increased wood prices and created a severe scarcity of wood, undermining traditional economic incomes for local communities.

Small-scale forestry is presented here as a new policy shift for forest management according to the new national forest legislation where local development is a central element for its implementation. Based on an integrated approach, biophysical, social and ecological issues have been taken into account using small-scale principles. Technological factors were also included to assess a broad group of species to be included in the analysis. A total of 54 sites, for a global area of approximately 32,000 ha (320 km²) are thought to be potentially capable to sustain a local development initiative for all five municipalities located in southern Aragua state. Spatial scale and distribution of sites is very variable in all cases. Several management scenarios are presented for selected species: *Samanea saman*, *Gmelina arborea*, *Acacia mangium*, *Tectona grandis*, among others. Agroforestry, farm and community forestry schemes are also suggested. Policies, actions and recommendations for a sustainable management include institutional strengthening, decentralization and the development of community-based forest enterprises. Additionally, ecosystem services should be adequately assessed in order to fully integrate a broader management planning where a monitoring program is essential to pursue an improvement in the preservation of poorly managed forest remnants. Finally, it is concluded that local livelihood can greatly improved and a new agenda for forest management can be possible when people becomes part of ecosystem management.

Key words: community-based enterprises; ecosystem management; local knowledge; multiple land use; *Samanea saman*.

Small scale forest owners' responsibility – Economically, societal and environmental

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Abstract: The UNCED summit in Rio in 1992 boosted a general consciousness of environmental, social and cultural issues. As one consequence Corporate Social Responsibility, CSR, or shortly Corporate Responsibility has become an important concern among corporations. CSR simply refers to balancing economic, social, and environmental responsibilities. CSR is fundamentally about ethics and the choice of behavior that is ethically “right” is complex and situation-ally dependent; the notion of sustainability is similarly controversial; and, the many stakeholders often have differing ethical and sustainability perspectives. The academic literature in the area is impressing. In my presentation I want to introduce the responsibility concept when studying small scale forest owners' behavior. It is nothing new about them taking responsibility. However, by linking research about corporate responsibility we can use some of these theories and empirical research when studying small scale forest owners. In many countries around the world the small scale forest owners play a significant role for the local communities, for forest products industries and for the public. The importance has increased as a result of the interest to replace fossil fuel with renewable energy sources at the same time as demand for non-market goods has increased, not the least in so called industrialized countries. I will in my presentation analyze small scale forest owners' economic, social and environmental responsibilities. I will start by doing this from the owner's perspective. Thus, the owner and his family will be in the center. In “next” circle I put the local community including neighbors and other businesses. In the second circle I include the society en large including the public, the government and its forest policy and the forest products industry. The outmost circle consists of the other nations and global policies or concerns. I will also address conflicts that may exist between the forest owner's perspective on responsibility and that of stakeholders. At the end I will discuss policy implications.

Key words: Management, cutting behavior, supply, non-market utilities, local communities

Bridging the gap between physical and social availability of timber: How much wood is really available?

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Abstract: As the population grows domestically and globally, so grows the need for wood products. There is an estimated 218 billion cubic feet of commercial trees in the forest of the 20 northern states. This estimated volume is located across various landscapes; the associated harvesting activities are influenced by various policies and programs; and 41% of the 218 billion cubic feet is owned by various non-industrial private forest owners, most of whom are families and individuals. Such conditions of the forest lead to an important question: how much timber in the 20 northern states is really available - both physically and socially? This paper intends to answer this question with a focus on family forests by 1) defining social availability of timber considering economic, societal, political, and human dimensions of forest management; 2) quantifying the social availability of timber in the 20 northern states and comparing it with the estimated physical timber availability; and 3) informing the development of forest policies and programs to maintain working forests, promote active forest management, and stem the decline of timber from family forests. The results will help state and local policy makers and agency officials, forest industries, community planners, landowner organizations, and natural resource professionals better understand current conditions and future trends of forest resources in the northern United States, balance the needs for wood products and for various ecosystem services provided by the forest, including carbon sequestration, watershed protection, scenic beauty and biodiversity conservation, and shed light on potential policy and program innovations to sustain domestic wood fiber supply and maximize forest ecosystem services and benefits.

ForestryFlix: Evaluating the Netflix model for accessing urban and rural populations in the central Appalachian region using a web-based DVD circulation program

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Abstract: In West Virginia, as throughout the Appalachian Region of the USA, approximately 76% of the forestland is privately owned by an estimated 250,000 private individuals and families. Although these forest owners are a large diverse group, only a small percentage is engaged in active forest management. The challenge to forest management organizations is to promote sound stewardship practices on this mosaic of properties owned by people with diverse objectives and motivations. This project was designed to test the Netflix business model for engaging private individuals in an educational outreach program to allow private forest owners and all citizens to learn how to properly conserve, manage and sustainably use their woodland resources from the comfort of their own homes. In 2007 and 2008, the authors developed and circulated a series of forestry and wildlife management activity DVDs using the Netflix business model for a six month period. This paper summarizes the development, implementation and evaluation of this outreach program.

Agroforestry technologies for pulp and paper contract farmers

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Abstract: Large pulp and paper enterprises require significant supplies of woody material to keep their facilities operational. In Thailand and India, many of these companies have moved to contract farming supply programs. In these programs, the enterprise enters into contracts with local farmers for trees to be grown on their property and then sold back to the enterprise. The enterprise provides farmers with seedlings at a reduced cost and guarantees the purchase of the tree at rotation age. Many local farmers have found that these contractual plantation forestry activities are easier and more profitable than traditional agricultural activities and quickly move all of their land over to plantations. This shift in production on a very large scale can have impacts on the local supply of agricultural products and increases risk to the farmers as they become dependent on the health and security of the pulp and paper enterprise.

A comprehensive literature review of agroforestry systems is presented to describe how they integrate tree and agricultural crops and technologies to create more diverse, productive, profitable, healthy and sustainable land-use systems. Opportunities exist within the pulp and paper contract farmer system to incorporate agroforestry techniques that may improve production and profits, minimize risk, and diversify the regional ecology. This paper will discuss agroforestry technologies that can be appropriate in contract farming situations. In the Thailand and India examples, the predominantly used tree is a Eucalyptus species that is traditionally viewed as a bad tree to have mixed with agriculture crops. Farmers may require new approaches to the common agroforestry practices in order to achieve the multiple benefits through these efforts. New contract farmers often have significant experience in agricultural production, however many have little understanding of plantation forestry. To enhance the potential success of these contract agroforestry operations, small scale forestry and plantation technologies and knowledge transfer must also be integrated into the systems.

Timber harvesting on the Slovenian family farms

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Abstract: Timber harvesting is an integral part of the family farm economy. Nearly a third of 1.2 million ha of forests in Slovenia are owned by family farms. The average forest property (5.6 ha) owned by family farms is three times larger than non-farm family forests. The hypothesis is that the societal development impact is also reflected in forest management and use of wood. Forest management has been monitored by the Statistical Office of the Republic of Slovenia: the 2000 census and sample surveys in 2003, 2005 and 2007. On average 50,000 family farms (70% of those with forests) provided information on annual harvesting activities. Between the years 2000 to 2007, total felling increased by 21% from 1.29 million m³ to 1.56 million m³. Average family farm felling increased from 25.0 m³ to 32.6 m³ and on per-area basis from 3.27 m³/ha/year to 4.11 m³/ha/year in the same period. Approximately 60% of wood was used for domestic purposes on farms. The use of wood for energy purposes oscillated between 55% and 62%. A combined approach of using forestry data and research into farm economies is an objective instrument for the study of long-term trends as well as a pertinent analytical tool for directing private forest management, forest planning, and forestry policy.

Payments for forest based ecosystem services in the US

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Abstract: Payments for producing ecosystem services have recently been promoted as an important, evolving “market” for forestland owners and potential policy lever for “keeping forests in forest.” Over the last two decades, a variety of federal and state programs have applied a combination of regulations, extension services, and incentives to encourage private landowners to implement forest management, conservation, and restoration activities. Most of these programs have relied on payments from the government to landowners (usually in the form of cost-shares) to encourage specific types of land management. Although programs that subsidize tree planting for timber production in the US South have a long and successful history, programs specifically designed to enhance the production of ecosystem services such as water and air quality and biodiversity conservation are newer and their impacts uncertain. More recently, payments from additional sources have begun to emerge, including payments for forest carbon offsets, biodiversity conservation, and watershed management. In this paper, we use data collected for the USFS 2010 National Report on Forest Sustainability and data from the Ecosystem Marketplace report, “State of the Voluntary Carbon Markets” to produce an historical, statistical, and spatial analysis of the payments forest land owners receive from government agencies, non-government organizations, and private firms.

Leasing state forest land to local people in Bangladesh: Does the policy enhance forest conservation and improve rural livelihood?

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Abstract: Forest management strategies in developing countries experienced a transition from state control to local management since 1970s. A number of local forest management approaches including social forestry, community forestry, and participatory forestry have been implemented. Forest policy of Bangladesh had also undergone changes to adopt a participatory forest management (PFM) strategy where local landless people were given degraded forest land (1-2 ha) for plantation development thereby improving their livelihood. This paper first describes a salient feature of the transition of forest policy towards a PFM, and then drawing a number of case studies from two PFM programs it shows how leasing of state forest land to local landless people enhances forest conservation and at the same time improves local people's livelihood.

Since the British colonial period, four national forest policies have been enacted in Bangladesh. Except current forest policy of 1994, none of them gave emphasis on involvement of local people on development and conservation of forest resources. However, due to pressure from donor agencies to involve local people in forest management leasing of forest land to local landless people under social forestry programs started in the country during early 1980s. Since then a number of PFM programs had been implemented. Empirical studies in two such programs reveal that forest areas in program sites has increased, people's participation in forest management activities has augmented and livelihood of participant villagers has enhanced. Due to disparity in forest production technologies, lack of people's awareness, inability of staff members to motivate people and lack of accountability and transparency program's outcomes varied in different sites. Recommendations that ensure effective participation of local people in program's functions, implementation of locally adopted and beneficial forest production technologies, and execution of good governance in managing program' activities are suggested.

Small-scale and amenity focused forestry: Filling a market niche

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Abstract: Urbanization, changing forest landowner values, and restructuring forest industry are creating challenges for the active management of small parcels of forestland. Many traditional service providers are reluctant to service small acreage parcels due to economies of scale, shrinking profit margins for unprocessed stumpage, and landowner expectations of more than timber revenue. New, amenity-oriented landowners do not understand traditional forestry operations, and do not know where to look for service providers. A gap in our nation's forest system has emerged, and many fragmented forested acres are being ignored, exploited, or converted to other uses because traditional forestry no longer fits. This creates a new market opportunity for service providers willing to work with small scale forest landowners. In this study, over fifty small scale forest service providers were interviewed to determine how their business is structured, how they charge for the services they provide, and how successful they perceive themselves to be. In addition, about 15 public-forest professionals from state and federal agencies, environmental groups, land trusts, and NGOs were interviewed to determine how they and their programs are changing in response to emerging conditions.

We found that successful service providers generally charge by some measure of time and materials rather than by commission. Other common attributes of successful small scale forestry operations included willingness to diversify their business to offer a bundle of services, and to work with professionals in related industries. Value-added processing and creative marketing assist service providers in achieving a profit from small-scale tracts with traditionally low-value products.

Educating family forest landowners about cultural resources

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Abstract: 150,000 families control at least 5.1 million acres of forestland in Washington. Their management objectives are diverse and generally they value their land for many reasons. One objective they have in common is their desire to protect the resources they steward for their own benefit and for society. Some of the least understood resources landowners manage are cultural resources. Cultural resources are broadly defined and contain examples of both physical assets such as old buildings, religious sites, and Native American artifacts and intangible culture such as storytelling, folklore, and drama. Cultural resources help us define our history, understand how cultures change, and provide insight for contemporary management of our lands and the environment. Ignorance of cultural resource identification and protection measures puts these resources in jeopardy of being destroyed and forever lost. But where do forest owners go for cultural resource information? Recently, they have been looking to extension foresters from Washington State University. Through a variety of educational efforts and collaboration, the WSU Extension forestry team has engaged forest-owning families, and those who work with them, in learning events which has increased the knowledge and identification skills in cultural resources. Protection of sites and objects of cultural significance has improved as a result of these endeavors.

Attitudes of landowners in West Virginia toward the use of prescribed fire as a management tool.

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Abstract: The eastern deciduous forest has evolved with wildfire as a natural disturbance. Oak species (*Quercus* spp.) have historically dominated this forest type, facilitated by substantial disturbance from fire. Regeneration of oak, however, is decreasing in various parts of the range, while shade-tolerant maples, beech, and hemlock are becoming ever more abundant instead. Many attribute the lack of regeneration to the elimination of wildfires. Prescribed fire is a forest management tool applied by highly trained personnel to forest fuels on a specific land area under specifically-selected weather conditions, and may be used to promote oak regeneration. Due to the potential risk associated with using prescribed fires, we believed that landowners may be unwilling to accept and use prescribed fire as a forest management option, even for the regeneration of oak – a highly valuable species. We surveyed landowners in West Virginia to understand their knowledge, attitudes, and opinions on prescribed fire as a forest management tool. This report summarizes the results and proposes recommendations.

Woodland owner networks and peer-to-peer learning

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Abstract: Small private forest owners consistently list peers as preferred sources of forest management advice. Since January 2008, the Woodland Owner Networks project has been investigating program models designed to foster peer-to-peer interaction and learning to support private forest management decisions. In April 2009, the project will bring together 45 researchers, agency administrators, funders, and leaders and members of woodland owner organizations large and small, representing a wide diversity of program objectives and models. The symposium is designed to bring together formal academic research with other perspectives and ways of knowing about peer-to-peer learning about natural resources. The symposium will have three primary outputs: 1) A list of practical tools and best practices based on both research and informal first hand learning by program organizers; 2) a statement of the current state of knowledge, knowledge gaps, and skill development needs; and 3) a statement of emerging opportunities and barriers to peer-to-peer learning in the future. This presentation will review the rationale (and risks) behind peer-to-peer learning to support sound small-scale forest management and report on the outcomes of the April 2009 symposium. It will also include a review of recent research results from ongoing qualitative and quantitative analyses of the outcomes and impacts of peer-to-peer learning in a small-scale private forestry context.

Marketing intelligence system for small scale essential oils industry of northwestern Ontario

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Abstract: One way of adding value to the forest resource is by identifying the widest range of products with commercial value in the forests and then assisting the small-scale industry to take advantage of the resource through improved collection, processing and marketing. A range of natural products such as essential oils, fine fragrance ingredients and other botanical extracts can be extracted from trees growing in the boreal forest, including black and white spruce, pines, cedar and balsam fir. These essential oils are extensively used in fragrances, cosmetics, aromatherapy, household cleaners and pharmaceutical products. A number of small-scale forest based industries in north-western Ontario are exploring the possibility of extraction and refinement of essential oils from boreal tree and plant species. These small-scale industries aim to target the flavour and fragrance industry all over the world. This article reviews the current situation in marketing of high-value essential oils obtained from boreal plant and tree species in north-western Ontario and develops a marketing intelligence system for the developing industry. The marketing intelligence system focuses on gathering and analyzing information about the customer, technological and competitive environment facing the small-scale essential oil's industry in the national and international markets. The industry's strengths, weaknesses, opportunities, and threats are analyzed against the political, economic, social and technological environments in these markets, in order to understand all the variables that help to guide the future product development in this small-scale industry. The basic preconditions for efficient and successful marketing of essential oils, for achieving sustainable forestry practices in north-western Ontario are proposed. This study is an effort to make the policy-makers aware of the opportunities offered by products other than wood to allow a more harmonious approach to forest resource conservation, management and utilization and thus contribute to sustainable development and environmental protection.

Making forestry sustainable: Recent Israeli innovations

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Abstract: At the turn of the twentieth century, the land of Israel was almost entirely devoid of vegetation and largely desertified. During the past sixty years, afforestation has transformed the local landscape, with forests planted and planned on 10% of the country's lands – much of it semi-arid with less than 300 mm. of annual precipitation. Originally, the trees selected by the KKL (the national forestry agency) were predominantly Aleppo pine and other conifers. Yet pragmatic, aesthetic and ecological considerations have led to today's diverse Mediterranean stands. Although the country's first generation of foresters' hoped to establish a successful commercial lumbering industry, recreation and ecosystem services soon came to dominate forestry objectives and public policy in the field. Recently, however, commercial forestry initiatives have begun to emerge. In areas where low productivity due to salinized and waterlogged soils led to the abandoning of farmlands, small farm operators are now engaged in a eucalyptus initiative on marginal lands, which has generated reasonable profits. Given Israel's status as a "developing country" under the Kyoto Protocol, forests' economic potential through carbon sequestration has been explored, but has not yet proven to be compelling. Nonetheless, as the trees planted in Israel's semi-arid regions, surprisingly, exhibit carbon sequestration properties comparable to forests in temperate Europe, the potential for offsetting may become a growing factor in local forestry policy.

On Improving the Triple Bottom Line Returns: The SAFEST (*Sustainable Agro-Forestry Ecological Farming Enterprise, Science and Technology Project*) Way

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The SAFEST project is the CFEM's "ride-on" project with the 5-year Department of Agriculture-Bureau of Agricultural Research (DA-BAR) funded project of the Upland Resource Development Center with the overall aim to demonstrate the acceptability, viability and adoptability of some ecological farming systems (organic, natural and conservation farming) that can address upland farm households' concern for production of "safe" food and cash under "safe" agroecosystems on a sustainable basis.

It is perceived to be in response to the calls of the following:

- The Kyoto Protocol: Reduction of Emission from Deforestation in Developing Countries (REDD) and Land-use, Land-use Change and Forestry Activities (LULUCF);
- United Nations' Millennium Development Goals;
- The Philippine Strategy for Sustainable Development (PSSD)
- Order 481 of 2005, entitled "Promotion and Development of Organic Agriculture in the Philippines;" and other environmental laws of the Government of the Philippines

In each of the six 1-hectare mango-based crop-livestock integrated farm in marginal or sub-marginal farm land, the observable triple bottom-line returns include mostly of the following: 1) the socio-cultural aspect: transformation from subsistence farmers to business farmers, shift from unsustainable to sustainable practices, individual health being freed from exposure to disease-carrier animal manures, food safe from side effects of inorganic fertilizer, variety of nutritious food/feeds, a shift from major to minor construction materials, a variety of nutritious food/feeds, safe food from inorganically grown crops to organic varieties, safe potable water/farm irrigation water needs, and access to social services through road construction; 2) the economic aspect: transformation from consumerism and subsistence farming to entrepreneurship, increased income from crop-animal production, lower cost of inputs, income from conversion of agri-wastes and/or lesser-used resources into useful culture media and bio-organic fertilizer (BOF), increased soil productivity, increased effective land area, increased effective rainfall, efficient/ effective production system, and, access to business/ finance/ marketing services; and 3) the ecological aspect: transformation from unsustainable/ conventional agriculture to sustainable agriculture, reduction of serious nutrient use imbalance, environmental health with agroecosystems *safe* from toxic chemical residues, solid waste management system, reduced CO₂ from burning, reduced CH₄ from decomposition, reduced emission from deforestation, carbon sequestration, reduced soil erosion/ landslide, and biotic balance and/or integrated pest management system.

Extent of forestry practices in a federal cost share program in West Virginia, USA

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Abstract: Because West Virginia has such a high percentage of forestlands that are owned by private individuals, providing these landowners with technical assistance and aid managing their forests is important to secure the sustainable future of the state's forests. The Forest Stewardship Program (FSP) and associated cost-share programs have been available to NIPF owners since their establishment by the Farm Bill of 1990. This program provides cost-share dollars to help landowners create a management plan with a certified forester to meet the goals they have for their land. By having a management plan, enrollees are eligible for cost-share dollars through federal programs to implement various practices recommended in their plan.

The effectiveness of the Forest Stewardship Program in West Virginia depends on the extent to which landowners follow their plans and practice sustainable forestry. In 2003, Jennings surveyed participants in the WV FSP about the status of implementation of recommended practices. For each of the 10 practices surveyed, respondents were asked if the practice had been applied 'somewhat', 'almost', and 'fully' according to its recommendation. He also sought to understand factors that influence the application of management practices. Jennings found that the highest implemented practices recommended on participants' stewardship plan were wildlife habitat improvement (78%), stand improvement (74%), improvement of recreation opportunities (71%), and soil protection (71%). All recommended practices in question were reported to be implemented at least 50 percent of the time. He also found that several factors related to whether a practice was carried out by the land owner. The most often reported significant factor in determining practice implementation was its recommendation on the landowner's stewardship plan. Other significant factors in determining whether a practice was implemented were whether the respondent felt certain that the plan would meet their objects and how often they referred to their plan.

Using a subsample of FSP participants, a telephone survey was conducted in 2005 to ask respondents about the recommendation of ten management practices and the acreage that these practices were carried out. Respondents were also asked if these practices were conducted with the aid of cost-share programs. Aside from understanding of the acreage to which recommended practices are implemented and what practices are being implemented using cost-share dollars, this study also seeks to determine differences in responses given by participants in these two surveys as to which recommended practices have been applied.

Development phases of forest planning activity in privately owned land: A planning work perspective

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Abstract: In Finland, similarly to many other Northern countries having a remarkable share of family forests, state-supported forest planning has been seen as one of the most effective tools to motivate forest owners to manage their forests in a way that contributes national welfare. In some countries the plans for family forests have obligatory status. Most often however, like in Finland, planning belongs to the category of “sermon-policy-tools”, the underlying assumption being that the aims of society and the individual forest owners are coherent enough: when the owners make rational decisions, supported by planning, also national economy gets benefits. In the national scale this assumption has turned to be true for decades, when owners while aiming mainly cutting incomes have guaranteed a smooth timber flow to forest industry.

A sort of turbulent might emerge because of value diversification, both among forest owners and more widely in society. The increasing plurality has challenged the traditional forest planning view and made it necessary to include, step by step, new objectives and tasks in planning systems (e.g. protection of valuable habitats, retention tree considerations on final cuttings, and recreation and landscape amenities). Still the foundations of planning systems have remained rather untouched. New features can be seen as cumulative layers in the present planning work. In the long run contradictions may emerge between the layers, calling for more definite changes in planning systems.

The present paper draws a picture about the development phases of Finnish forest planning activity from 1960's, focusing particularly on the rhetoric about the role of forest owners in the planning discourse. The analysis shows that the “historical types” of the work by Victor and Boynton: craft, mass production, process enhancement, and mass customization, can be recognized in the development phases of Finnish planning work. Those phases are illustrated by examples from planning practices. Symptoms of mass customization, seen as dominating the present developmental discussion of forest planning, are described more precisely. Finally some weak signals calling for the next activity principle, co-configuration (in other words “collaborative development”), are presented and some possible features of this forthcoming type of planning, labeled here as an adaptive planning, are discussed.

Benefits of restoring degraded forest lands in Ghana

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Abstract: The current deforestation rate in Ghana causes huge social, economical and environmental problems. Because of heavy dependency on biomass, rural populations are obliged to chunk at their forest resources and agricultural residue. Current agricultural practices, including pastoral farming and cutting for biomass, are amongst the fundamental causes of major environmental problems. Also the degradation of the environment by wildfires has made woodlands to turn into grasslands and food productivity and medicinal plants to decrease.

The West African state lost 1.9 million hectares or 26 percent of its forest cover in the last 15 years. The most recent study of Africa's vegetation changes, estimated 3% per year deforestation rate for Ghana. Community involvement in forest landscape restoration continues to receive increased attention in Ghana and Africa as a whole.

This paper discusses preliminary findings of the forest policy research project in Ghana funded by the Academy of Finland. The project was designed to improve utilization of indigenous tree species, with mahogany as example, in forest rehabilitation and landscape restoration in Ghana. The technical and organizational capacities of communities are also considered.

The paper deals with the deforestation causes (e.g. poverty driving agriculture, lack of alternative rural wage employment and role of timber industry) and assess the variation in forest use and dependence on forest resources among rural households. Illegal logging and Ghana's Voluntary Partnership Agreement with the European Union are other important issues in the paper.

Public good delivery in private woodlands in England: An empirically-based typology of small-scale private forest owners

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Abstract: The role and nature of woodland and forest ownership is changing significantly in England. Environmental conservation and enhancement, the provision of recreation and amenity and the use of biofuels to mitigate climate change are being increasingly emphasized in new policy agendas. However, forest policy, incentives and support needs to be tailored according to the underlying values of the various types of forest owners if it is going to influence their management activities. The aim of this study was to identify different types of private woodland owners in England, especially with regard to their willingness and ability to deliver public good benefits. A postal survey was conducted and woodland owners were classified using factor analysis and cluster analysis into six owner types (n=416): the Protectionist Owner, the Educating Conservationist, the Amenity Owner, the Passive Owner, the Private Consumer and the Timber Producer. The results confirmed the heterogeneous nature of woodland ownership and provide insight into the varying objectives and characteristics of different owner types. The findings should provide a deeper understanding of the behaviour of private woodland owners in England and provide a basis for the development of forest policy and public sector support.

Homebuyer wildfire risk perceptions versus reality in northwest Montana

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Abstract: Wildland-urban interface (WUI) communities in the United States continue to grow rapidly, with new residents attracted by the environmental amenities, including forests, wildlife and recreational access. Consequently, human life and property is increasingly threatened by wildfire, and government land management agencies and fire departments are increasingly faced with the challenge of their protection. Several economic studies have found that forest wildfires burning near WUI communities can substantially reduce the value of homes by diminishing environmental amenity and increasing perceptions of wildfire risk. This may be a sign that housing markets are beginning to reflect the hazards of living in high amenity forests. However, anecdotal information suggests many homebuyers do not have a sound understanding of wildfire risk and may simply be attracted to WUI homes where wildfire is out of sight and out of mind. This study employs a hedonic price model to examine how homebuyer willingness to pay for homes in the WUI of northwest Montana is affected by environmental amenities, previous wildfires and the probability of future wildfires on the landscape. Policy implications for wildfire management near the WUI and public education are discussed.

Adoptability of a complex agro-forestry project for smallholders on a Philippine island

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Abstract: It is investigated if anticipated management and (economic) outcome of an adopted (agro-) forestry system are in accordance with the actual management and use of the system by smallholders. The “Rainforestation Farming” (RF) project was developed in a Philippine-German co-operation and is based on the use of indigenous trees in contrast to the predominance of exotic timber trees in commercial tree planting.

Twenty-five farmers, who had adopted the RF system between 1995 and 2000 on individual plots, were interviewed in two survey rounds in 2007 and 2008, gathering data about the socio-economic conditions as well as management and use of their trees. When comparing this data with the anticipated management and use as thought of by the project developers it became evident that most farmers managed the plots not as intensively as suggested by the project developers. Mostly farmers did not carry out pruning and thinning, many had no intercrops in the first years and many had no fruit trees interplanted. The inclusion of intercrops and fruit trees was emphasised to give farmers the opportunity to gain income from the plot before the timber can be harvested, which will take 25 years or more for several species. But farmers focused much less on the economic side of the project, but were planting the trees for their own or their children’s use, whereby the maximum profitability was mostly not their concern.

The project developers had planned the project carefully so that resource-poor smallholders would be able to start RF and benefit economically. But the “typical” individual adopter was not the typical smallholder, but was endowed with higher resources, being it either enough land or a more attractive off-farm employment.

The concept clearly has the potential to offer ecological benefits as well as economical ones, but in order to be spread widely, considerable extension advice over the course of several decades would have to be offered, which is a time-consuming and costly procedure. Spreading of the technology took not place over individual farmers, but over farmers associations only, and on a very low level. Current policy regulations, making harvesting and marketing of indigenous timber trees a complicated procedure, are another obstacle for small-scale tree farmers. It is concluded that in its current complex form and without external (financial) assistance, RF is not an easily adoptable concept for resource-poor smallholders.

Bioenergy from private forest sector and its importance Latvia

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Abstract: Collection of fuelwood is one of dominated activities in private forest sector in Latvia. Forest as fuelwood source is in the top in the valuation of forest functions done by private forest owners. Opinion poll of landowners shows it is also very important motive for being forest owner.

Knowledge of private forest owners about different sources of bio-energy from their forests and bioenergy market was tested in opinion poll. Results of study show that fuelwood collection frequently isn't based on sustainable management principles and is very close to conflict with legislation requirements. Dead wood is more prevalent than harvesting residues, also concept "of clean forest" is vital issue in private forest sector. Today solutions in private forest sector are taken by 145 thousand private forest owners. Considering that fuelwood collection is related to welfare of forest owners, it is great need to increase knowledge and understanding on these issues.

Harvesting and potential amounts of fuelwood in private forests, its consumption in household sector and supply to market are actual topics from view point of state policy implementation in forest and power sector. This paper also tries to describe why calculations about fuelwood use in household sector based on statistical data, owners' interviews and theoretical approach are inconsistent.

Made in the shade: Nontimber forest product social and knowledge networks

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Abstract: Nontimber forest products (NTFPs) are the proverbial elephant in the woods. They are defined subordinately, by what they are not. Forest managers sometimes ignore them. One is unlikely to get rich harvesting NTFPs, and even established enterprises are consistently hamstrung by uneven supply quality and quantity. NTFP activities are typically diffuse and invisible, and hence, undervalued. It would be a mistake, however, to equate lack of attention with lack of importance. More likely, inattention relates to the challenge of understanding a diverse suite of products, for which uses and motivations for use are also diverse. Indeed, this multi-faceted diversity is the core value of NTFPs.

Consider the implications of a holistic approach to NTFPs for natural resource education, the environment, and local economies. NTFPs are diverse. They provide exposure to the whole: canopy and understory, roots, shoots, seeds and fruits. They are of boreal, temperate, and tropical forests. Local, national, and international NTFP users all share a frame of reference, even when the products and forests differ. NTFPs are used diversely. In this way, a local resource has potential appeal to multiple subsets of the general population: rural and urban, native communities, and immigrants. NTFPs activity is diversely motivated. Harvest can be economically driven, as an economic safety net, an income-smoothing mechanism, or a full-scale enterprise. It can be cultural and spiritual. NTFPs also provide a source of outdoor recreation. With NTFPs, forest managers have the potential to draw interest from local and global communities. Similarly, the reach of local NTFPs can be extensive. All harvesters, intermediaries, and end-users are stakeholders, and thus potential beneficiaries and supporters of local forest policy.

Made in the Shade is a new effort coordinated by a team from University of Minnesota Extension. Its goals are:

- Increased awareness of nontimber forest products and resources
- Exchange of nontimber traditions, experiences, and information
- Development of a network for nontimber appreciators, users, educators, and entrepreneurs.

Our approach draws from traditional and emerging technologies, seeking a balance appropriate to our user base. Thus, Made in the Shade fosters the creation of a two networks: an NTFP harvester/user network and a related, virtual knowledge network. Working together these will increase the visibility of NTFP activity, permit real and virtual interaction, and serve as a platform for education and natural resource based economic development. Our paper details the Made in the Shade concept, the approach taken, expected outcomes, and early results.