

BOOK OF ABSTRACTS FOR ORAL PRESENTATIONS

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ABSTRACTS ARE LISTED IN ALPHABETICAL ORDER
BY LAST NAME OF THE PRESENTER

Adiwinata Nawir, Ani

Towards Commercially Oriented Community Forestry Management: Coping with Economic Globalization And Commercialization

Ani Adiwinata Nawir, Center for International Forestry Research

Past and current community forestry management practices have not successfully improved the livelihoods of forest communities due limited options for expansion beyond subsistence and for optimizing the economic forest benefits to lift these communities out from poverty. One of the recent challenges has been to face the rapid development of economic globalization and commercialization. There are serious challenges in translating opportunities under globalised and commercialized economics into policy and socioeconomic incentives that can be benefiting for local community.

It is important for local enterprises to become more competitive commercially within globalised economic condition, by ensuring feasible and viable management practices so that communities can work themselves out of poverty, as well as by advancing local producers with commercial and business knowledge and skills, mainly in understanding the risks of development options. This paper aims to explore important components and necessary conditions for developing feasible and viable enterprises so community forestry management becomes more resilience in facing dynamic globalised economics climate. With the main underlying assumption that communities involved are rational decision-makers interested in change; three components of feasible and viable community forestry enterprises are: (i) the needs to have a good institutional capacity on financial management and technical skills to implement commercial activities sufficiently; (ii) a system for allocating benefits and costs; and (iii) economically profitable forest unit. These should be supported by incentive framework based on benefit-sharing and power-sharing principles.

Aguilar, Francisco

Effects of Cost-share Programs on Forest Management by Non-industrial Private Landowners: Evidence from the U.S. Northern Region

Nianfu Song, University of Missouri

Francisco X. Aguilar

Brett J. Butler

Accurate assessment of cost-share program effectiveness in inducing forest management is faced with the challenge that program participation is not a random process per se, hence, econometric analyses produce biased results if this fact is not corrected for. This study used propensity score matching to randomize a sample drawn from the most recent National Woodland Owner Survey dataset for the U.S. Northern region. We investigated drivers for participation in cost-share programs and assessed cost-share program effects on stated future forest management and land use change. Non-industrial private forest landowners with larger areas of land exhibited different functions for cost-share participation and effects on future forest management compared with owners of smaller areas. Higher levels of education and timber production objectives were shown to be positively associated with cost-share participation for owners of all forest sizes. It was estimated that landowners enrolled in a cost-share program were 39% more likely to adopt sustainable and environmental management plans, and 18% more likely to planting trees and practice forest regeneration than others. Cost-share programs were correlated to converting non-forest land into forest land, conduct road maintenance and chemical application for improving forest health in the future. While cost-share programs made non-industrial private forest owners with less than 1,000 acres more likely to state that they intend to harvest timber, purchase forest in the future, and improve wildlife habitat, they also made landowners with more than 1,000 acres less likely to practice these management activities.

Anderson, Toni

Public Preferences and Values

Toni Anderson, University of New Brunswick

Healthy watersheds provide valuable ecological goods and services (EG&S) to Canadian communities. These include the supply and purification of fresh water, provision of wildlife habitat, among others. Because EG&S' lie outside the traditional domain of commercial markets they are often under-valued, and consequently under-protected. The purpose of this study was to: (i) assess how the general public perceives the rights and responsibilities of private landowners in managing EG&S' in the Little River Watershed (LRW), in northern New Brunswick; and (ii) estimate the social benefits derived from environmental improvements in the watershed. A public mail survey was given to 800 residents living in or around the LRW using a modified Tailored Design. Survey participants were asked a number of questions regarding their perceptions of landowner rights and responsibilities, and were then given a series of choice experiments to elicit their willingness-to-pay for improvements in water quality and wildlife habitat in the watershed. Other attributes included in the choice experiments were landowner income losses and income tax increases to pay for the environmental improvements. Results imply that respondents are willing to pay to see water quality and wildlife habitat improvements, yet require compensation if landowner income losses are greater than 10%. These results will aid community groups, land managers, and policy makers to better understand the public's perspectives on land management and the social benefits derived from EG&S improvements in the LRW.

Barlow, Rebecca J.

The Time is Right for a Renaissance in Southern Pine Agroforestry: Bringing Back Grazing and Longleaf Pine

*Rebecca J. Barlow, Auburn University School of Forestry and Wildlife Sciences, Alabama Cooperative
Extension System, Longleaf Pine Stand Dynamics Laboratory*

Janice Dyer, Auburn University School of Forestry and Wildlife Sciences

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*John C. Gilbert, Auburn University School of Forestry and Wildlife Sciences,
Longleaf Pine Stand Dynamics Laboratory*

The most common form of agroforestry in the southeastern US is silvopasture, or managing property for livestock, forage, and timber on the same parcel of land. Agroforestry practices have the potential to generate periodic revenue beyond traditional forest management, while keeping land forested. However, agroforestry's potential for increased productivity, additional and more regular income, and improved environmental conditions is largely unrecognized by most contemporary land management professionals. Land managers often hesitate to recommend forest farming to landowners due to perceptions that there are limited management alternatives, and the economic benefits are unproven. Studies illustrate the potential benefits of agroforestry practices with southern pines, particularly slash (*Pinus elliottii*) and loblolly pines (*P. taeda*). There is also potential to use silvopasture as a tool to restore imperiled forest systems such as that of longleaf pine (*P. palustris*).

Much of the southeastern US economy post-Civil War centered around grazing on a landscape dominated by longleaf pine. With fencing laws and the near destruction of the original longleaf forest, agroforestry nearly disappeared from the southeastern landscape. There is a renaissance for both grazing and longleaf with the changing economy and landowner objectives. Preliminary results from a 4-year study comparing longleaf and loblolly pine in an agroforestry setting are presented. Initial findings indicate loblolly had better survival and greater height growth. The slower growth of longleaf may delay timing of cattle introduction and thus economic returns to landowners. Pine straw harvesting will be discussed as a way to offset the potential delay in economic returns.

Beckley, Thomas M.

“Why Do You Practice Good Management?”: Ethical Motivations for Land Stewardship in Sweden, New Brunswick and Maine

Thomas M. Beckley, University of New Brunswick

Michael R. Quartuch, University of Maine

Different historical property traditions have led, in part, to divergent views, practices and orientations to land, land ownership, and stewardship between North American and Nordic countries. Sweden has a more collectivist orientation to land, best exemplified by the tradition *allmansrätten*. This tradition entails very open and liberal sharing traditions regarding the use of one another's private land. North American traditions are characterized by a stronger landowner rights tradition and a more individualistic orientation with respect to use, trespass and sharing of land resources. In 2008-2009 our research team conducted in-depth, face-to-face interviews with a broad spectrum of landowners in Sweden, Maine, USA, and New Brunswick, Canada. We completed 15 interviews in Sweden, 15 in New Brunswick, and 14 in Maine. We were particularly interested in stewardship ethics and landowners' sense of duty to manage their land responsibly. More specifically, we were interested in the degree to which landowners were motivated to act responsibly due to a sense of duty three domains: a higher power, the land itself, or to social entities (society, community, family). As expected, Swedish respondents tended to have a more social and collectivist orientation to stewardship. North American respondents were more mixed, but with considerably more emphasis on the land itself and a higher power or God than their Nordic counterparts.

Blazier, Michael A.

Bio-based Business Opportunities for Non-industrial Forest Landowners: A Case Study in the Mid-south USA

Richard Vlosky, Louisiana State University Agricultural Center

Glenn Hughes, Mississippi State University

Michael Blazier, Louisiana State University Agricultural Center

Dek Terrell, Louisiana State University

Roger Smithart, Louisiana State University Agricultural Center

Paul Darby, Louisiana State University Agricultural Center

Wood-based biomass has become an increasingly important feedstock for energy and fuel production. Louisiana and Mississippi are typical of states in the Southeast USA, with non-industrial private forest landowners accounting for the majority of forestland ownership. In a pilot study, we surveyed 3,500 small and medium private forest landowners in southwest Louisiana and central Mississippi to identify current and potential bio-based business opportunities as well as their willingness to participate in harvesting biomass for bio-based products and markets. Results indicate that landowners were generally positive about utilizing biomass for bioenergy and 51% were willing to participate in forest management activities specifically geared for biomass production. We also surveyed policy makers and influencers in the Louisiana and Mississippi forest sector. This group strongly believes that forest-based bio-businesses can contribute to rural development and jobs creation. Finally, we estimated the employment and regional economic impacts of constructing and operating a woody-biomass feedstock-based electricity generating plant in southwest Louisiana and a pellet plant in the delta region of eastern Louisiana.

Bray, David Barton

Indigenous Community-Based Forest Conservation in Oaxaca, Mexico: Challenges and Opportunities

*Elvia Duran, Centro de Investigación Interdisciplinaria para el Desarrollo Integral Regional Unidad
Oaxaca, Instituto Politécnico Nacional, México*

David Barton Bray, Department of Earth & Environment, Florida International University, Miami, FL, USA

Mexico is a megadiverse country, and a large part of its biological richness is harbored in its tropical forests. An estimated 60% of Mexican forests are under community ownership as common property, thus local forest management is key to reducing deforestation, providing environmental services, and providing sustainable livelihoods for communities. Common property management requires collective action for timber and non-timber extraction as well as biodiversity conservation. We report on the main findings of a six year study of a group of Chinantec indigenous communities in the Sierra Norte of Oaxaca, Mexico who have placed 77% of their more than 34,000 hectares in an indigenous/community conservation area. The goal was to understand the economic, ecological, cultural and social motivations and consequences for intercommunity collective action in the Natural Resource Committee of the Upper Chinantla (CORENCHI) around strict conservation. We also examine how inter-community collective action became integrated in a multi-level governance scenario focused on wildlife conservation and forest cover maintenance. Based on existing literature we argue that this case study requires an extension of the constitutive elements of common property theory.

Brigham, Tim

Forest-based community development in Canada's North: Lessons from the Northern Forest Development Centre

Tim Brigham, Royal Roads University

Starting in the 1990's, there was growing interest in Canada in the potential for non-timber forest products (NTFPs) to improve rural livelihoods, especially in northern and Aboriginal communities where high levels of under- and unemployment are commonplace. In northern Manitoba, this interest led to the development of the Northern Forest Diversification Centre (the "NFDC"), a unique organization created through the University College of the North dedicated to developing and promoting the NTFP sector in the region. During its years of operation (2001-2006), hundreds of harvesters were trained by, and sold products to, the NFDC, earning modest incomes that were nevertheless important. Less tangible but perhaps equally important benefits delivered by the NFDC program to participants included increased pride and self-sufficiency, re-connection with the land and community, rediscovery of traditions, and skills development. The closure of the NFDC in 2006 led to a dramatic decline in the value of, and participation in, the NTFP sector in northern Manitoba. This presentation will focus on the lessons that can be learned from the NFDC program, including the importance of a clear vision amidst diverse expectations; that support for small-scale harvesters must be long term and expectations realistic; that local champions are essential and must be supported; that all elements of the market chain must be integrated; and that the social, environmental, and cultural benefits associated with NTFP development, as well as the economic ones, must be fully recognized and valued.

Butler, Brett

Monitoring Trends in Family Forest Ownership in the United States

Brett Butler, USDA Forest Service

Jake Hewes, Family Forest Research Center

There are over 10 million family forest ownerships in the United States and collectively they control 35% of the nation's forest resources. In order to create effective forest policies and programs, it is imperative to understand the characteristics of these owners and the trends in these characteristics. The U.S. Forest Service's National Woodland Owner Survey (NWOS) contacts approximately 5,000 private forest owners from across the U.S. every year to ascertain: who they are, why they own land, how they have used it in the past, and how they intend to use it in the future. The latest NWOS data, collected in 2011, represent the first time the program is remeasuring the sample points – if the owners were the same, they were resurveyed and new owners were surveyed for the first time. These data will allow for unprecedented trend analyses to be performed. Information on changes in land ownership characteristics (e.g., size of forest holdings), landowner attitudes, landowner behaviors, and landowner demographics will be presented along with the implications for forest policies and programs.

Chamberlain, James

Forest Farming for Non-Timber Products: Opportunities & Challenges

James Chamberlain, USDA Forest Service, Southern Research Station

Forest farming, the cultivation of understory plants and fungi with economic value, may be a way for small-scale forest landowners in Appalachia to realize greater benefits. The region, which runs from southern New York to northern Alabama, is host of an expansive temperate hardwood forest that has a tremendous diversity of economically important plants. Eighty percent of the land base is in private ownership, and the majority of this is in family forests. These holdings are typically small in size, and maintained for reasons other than timber production. A great diversity of native plant species are harvested for their value in the medicinal, culinary, craft, and other product markets. Most of the plants used for their non-timber values are harvested from the wild, with little or no consideration for the long-term impact on the natural resources. The market potential for many non-timber forest products is significant, but the economic viability of producing them through forest farming is a major challenge. Farming these valuable plants in a forest setting could reduce pressures on natural populations, increase biodiversity and forest health, while diversifying income portfolios. Yet, production methods and yield estimations are challenges that may thwart landowner efforts. Recent government initiatives, such as 'Know-Your-Farmer, Know-Your-Food, could spur efforts to develop forest farming in the region. Efforts are needed to get forest farming recognized in future government programs, such as the next farm bill. This presentation examines opportunities for forest farming in the region, and challenges that could frustrate efforts to diversify forest operations.

Current, Dean

Harnessing markets and enterprise development to drive conservation: The Eco-Palms case

Dean Current, University of Minnesota/CINRAM

Responding to concern about the unsustainable harvest of cut palms from important biosphere reserves in Mexico and Guatemala as well as the low level of benefits that palm gathering communities receive for the palm, a market study was commissioned in 2000-2001. Based on that market study and a survey of Christian congregations that use the palm for Palm Sunday celebrations, the Eco-Palms program was born. Eco-palms are sustainably harvested from natural forests with a fair trade type payment provided for Palm Sunday sales. In addition, the producing communities are now selling directly to importers providing additional income and employment in the palm producing forest communities. Palm Sunday sales have grown from 5,000 stems in 2005 to over 800,000 stems in 2011, with funds being used for social infrastructure and scholarships in the communities. This has required coordination between the private sector and faith based organizations in the US, environmental NGO's and government agencies in Guatemala and Mexico and the palm producing communities. The Eco-Palm case and the model that has been developed based on that experience will be presented.

Daniel, Marissa 'Jo'

Social Availability of Woody Biomass for Renewable Energy: Missouri Family Forest Landowners Perspective

*Marissa 'Jo' Daniel, Department of Forestry, University of Missouri
Francisco X. Aguilar
Hank Stelzer*

Physical estimates of standing wood can be used to assess and project total above-ground woody biomass, but these estimates fail to explore social availability. Over 85% of Missouri's forests are privately owned, thus, the future lion's share supply of woody biomass to the energy industry remains with the state's private landowners. The percentage of woodlands and corresponding biomass deemed socially available to supply woody biomass for energy in Missouri was determined along with an evaluation of the impacts of dominant timber prices and public matching payments (e.g. biomass crop assistance payments). The assessment relied on the use of conjoint analysis in the form of an instrument used to determine the joint impact of timber prices and subsidy payments on woody biomass availability. Data was collected through focus groups and a mail survey following the Tailored Design Method. A probability model was used to draw conclusions about the social availability of woody biomass as a function of timber and biomass prices, subsidy payments and demographic profiles. Findings show that while many landowners are not knowledgeable about woody biomass for energy they are curious and wish to learn more about potential uses. Findings also suggest that greater relative timber prices –not biomass prices- and public payments for woody biomass can influence woody biomass social availability. If the timber and biomass price incentives are sufficient landowners will be willing to supply biomass, however, a majority do so with conservation/recreation objectives instead of forest management considerations.

Dhakal, Arun

Factors Affecting Adoption of Agroforestry Based Land Management Practice: A Case of Dhanusha District, Nepal

Arun Dhakal, Faculty of Business and Law/Australian Centre for Sustainable Catchments (ACSC)

Geoff Cockfield

Tek Narayan Maraseni

This paper explains how an index value can be developed to study the adoption of multiple farming technologies such as agroforestry based land management practice in the Dhanusha District of Nepal, and analyses the factors explaining the variation in adoption decision of such practice. Data about the different farming technologies and the factors (bio-physical, socio-economic) influencing adoption were collected from focus group discussion and randomly selected households through a household survey questionnaire. Farmers of the study area had adopted several types of farming technologies to maintain the farm productivity. The study revealed that some variables such as low fertility of soil, high slope gradient of farm land, erosion and flood potential had no influence on adoption decision of agroforestry based land management practice while these variables were highly influential in case of the single technology adoption decision such as tree planting. The variables found significant were: farm size, availability of irrigation water, education, agricultural labour force, frequency of visits, expenditure on farm input purchase, household's experience in agroforestry, and distance of home to government forest. All these variables had a positive influence on adoption decision of agroforestry based land management practice. However, the first five variables had remarkably influenced the adoption decision as 72% of variation in adoption decision was caused by these variables. Therefore, provision of irrigation water, extension services and motivation to obtaining higher education are needed for farmers elsewhere in the terai of Nepal to promote this type of agroforestry based land management practice.

Fischer, Paige

Cross-boundary Cooperation and Wildfire Risk

*Paige Fischer, Western Wildland Environmental Threat Assessment Center (WWETAC)
Pacific Northwest Research Station, USDA Forest Service*

Managing natural processes at the landscape scale to promote forest health is important, especially in the case of wildfire, where the ability of a landowner to protect his or her individual parcel is constrained by conditions on neighboring ownerships. However, management at a landscape scale is also challenging because it requires cooperation on plans and actions that cross ownership boundaries. Cooperation depends on people's beliefs and norms about reciprocity and perceptions of the risks and benefits of interacting with others. Using logistic regression tests on mail survey data and qualitative analysis of interviews with landowners, we examined the relationship between perceived wildfire risk and cooperation in the management of hazardous fuel by nonindustrial private forest (NIPF) owners in fire-prone landscapes of eastern Oregon. We found that NIPF owners who perceived a risk of wildfire to their properties, and perceived that conditions on nearby public forestlands contributed to this risk, were more likely to have cooperated with public agencies in the past to reduce fire risk than owners who did not perceive a risk of wildfire to their properties. Wildfire risk perception was not associated with past cooperation among NIPF owners. The greater social barriers to private-private cooperation than to private-public cooperation, and perceptions of more hazardous conditions on public compared with private forestlands may explain this difference. Owners expressed a strong willingness to cooperate with others in future cross-boundary efforts to reduce fire risk, however. We explore barriers to cooperative forest management across ownerships, and identify models of cooperation that hold potential for future collective action to reduce wildfire risk.

Friday, J.B.

Small Scale Forestry in Hawai'i Develops Models for Landscape Scale Forest Restoration

J.B. Friday, University of Hawai'i

The Hawaiian Islands encompass many diverse ecosystems, from tropical rainforests to thorn scrub deserts. Over a thousand species of plants are native to the islands, with most being unique to Hawai'i. More than half of the native forests were cleared for agriculture, beginning with the advent of the first Polynesian settlers and accelerating with Western contact. Today plantation agriculture and ranching are in decline and many large estates have been broken up into small landholdings. Some small landowners have begun forest restoration, either for native species conservation or for timber production. Unlike on the mainland US, landowners are starting with a blank slate of pastures or fallow fields, and abandoned land naturally regenerates with invasive species rather than the native flora. Small scale trials of timber species such as mahogany or teak are yielding valuable information on site specificity and local growth rates of exotic trees. Experiments in planting native species such as sandalwood and koa are developing models for restoration which can be applied at a larger, landscape scale. Participation of small landowners in conservation alliances with government land management agencies and large landowning estates allows different landowners to learn from each other.

Gilbert, John C.

Using GIS to Benefit Family Forests: It's More than you Think

John C. Gilbert, Longleaf Pine Stand Dynamics Laboratory, Auburn University School of Forestry & Wildlife Sciences

John S. Kush, Longleaf Pine Stand Dynamics Laboratory, Auburn University School of Forestry & Wildlife Sciences

Rebecca J. Barlow, Longleaf Pine Stand Dynamics Laboratory, Auburn University School of Forestry & Wildlife Sciences, Alabama Cooperative Extension System

There is growing interest among private landowners to diversify the benefits derived from their property. This is especially true for small-scale private landowners, where traditional timber production alone might be difficult with the current economy. Multiple-use management and creating landowner cooperative networks has the potential for increased productivity, additional and more regular income, and improved environmental conditions for private forestland. Geographical Information Systems (GIS) can be used to facilitate landowner efforts by assisting landowners with basic mapping skills, identifying opportunities for local markets, and creating landowner networks.

In the southeastern United States, ongoing efforts to restore longleaf pine forests (*Pinus palustris* Mill.) are building momentum with plans to more than double the current acreage of the species. The majority of current forests are privately owned, isolated fragments where millions of hectares once existed. The success of restoration efforts beyond one rotation is dependent on sustainable restoration and conservation practices that promote natural regeneration and the use of prescribed fire in existing stands and for future plantations. These activities may be difficult for small-scale private landowners without landowner cooperation. This presentation will focus on using GIS to facilitate multiple-use management and landowner cooperation for small-scale private landowners by building upon a database of existing longleaf pine stands and landowners. The database will be used to connect landowners and identify opportunities for sustainable management, cooperative agreements, and education.

Gold, Anat

Small Forests in Desert Towns –A Stimulus for Social and Economic Development

*Anat Gold, Southern Region Planning Department
Forest Service of Israel – Keren Kayemet Le'Israel Israel*

The Israeli Negev is a dry desert region in the south of Israel.

The capital of this region is Beer-Sheva and surrounding it are Jewish and Bedouin towns. The Negev's socio-economic level is much lower than that in the central part of Israel. Therefore development of open area forests and urban parks is even more vital there.

In this paper I will present the plan of the Forest Service of Israel for the Bedouin village of Segev-Shalom, population 9,000, located near Beer-Sheva. In the past this population was nomadic. Today many Bedouin are adapting to an urban lifestyle necessitating a new approach to open areas.

A master plan for a community forest was devised based on river bank strips. The plan utilizes special desert tree species and landscaping methods developed through many years of experience in desert climates, to ensure growth without irrigation and with minimum maintenance.

These river bank strips will provide a place for family recreation and tribal gatherings. This proposed community forest and park will also offer bike/hiking paths and community activities. This type of park has proven successful in the development of The River Park in Beer-Sheva. These areas have changed from being a visual and environmental hazard to being an area of leisure and recreation. Land around these rivers has increased in value bringing new growth, development of trade and recreation facilities in the immediate vicinity. It is hoped the community forest in Segev-Shalom will effect the same changes.

Gupta, Angela

Ash Management for Private Forest Landowners

Angela Gupta, University of Minnesota Extension

Julie Miedtke

Amy Mayer

Emerald ash borer (EAB) is impacting forests across the country. Minnesota has more ash trees (*Fraxinus* spp.) than any other state in the nation and currently, there are two primary EAB infestations in the state. Family forest landowners who own approximately one third of Minnesota's forest land have been asking what they should do to manage ash with threats from EAB. To answer that question the University of Minnesota Extension led a diverse panel of experts and stakeholders in a modified-Delphi survey process that yielded ash management recommendations in the face of EAB specifically for family forest landowners. The modified-Delphi process enabled panelists to develop management recommendations in a quickly changing world of invasive species, climate change, and an increasingly unknown future by offering feedback in three rounds of the survey. Recommendations specific to Minnesota's native plant communities were generated for wildlife, wood markets, EAB cold hardiness and more. One particularly helpful set of recommendations developed were possibly replacement trees, including dutch elm resistant elms in seven of the nine ecosystems. Results from the survey were used to develop 70 page-full color publication. In addition, the publication contains information on identification, the history of Minnesota's ash resource and current abundance, and detailed descriptions of native plant communities and other information on the implications of EAB and ash trees. The publication will help family forest landowners make informed decisions for their land.

Hatcher, Jeff

Rethinking Regulatory Barriers to Communities and Smallholders Earning their Living from Timber

David Gritten, RECOFTC - The Center for People and Forests

Julian Atkinson

James Bampton

Madankumar Janakiraman

Bernhard Mohns

In recent years the rights of communities to access the forest in their vicinity have been strengthened through devolution processes in numerous countries. These rights are expected to translate into concrete benefits for these communities. In reality the benefits are often not being delivered. This is largely based on over-regulation, as well as technical and financial limitations. The aim of the work is the identification and analysis of regulatory barriers to communities and smallholders attaining their livelihoods from the sale of timber and timber products. This is central to ensure that devolution achieves one of its main objectives, i.e. poverty reduction.

The work is based on an analysis of the regulatory barriers in six Asian countries (Cambodia, Indonesia, Nepal, Philippines, PNG and Vietnam) and Mexico. The work in each country follows three stages: 1. policy analysis and literature review, 2. Experts' workshop (participants include government officials, timber buyers and sellers), 3. Focus group meetings at two sites (e.g. timber growers, merchants and processors, government officials).

The results highlight issues facing communities and smallholders including:

1. Often prohibitive costs (in terms of time and money) to meet the regulations,
2. Often significant differences between the regulations on paper and in practice,
3. The capacity (skills and funding) to comply with the regulations needs significant investment.
4. The regulations even encourage unsustainable practices.

The work puts forward recommendations that are good starting points for moving forward to a win:win:win situation of improved forest conditions, maintenance of environmental services and improved livelihoods.

Hujala, Teppo

Triological Learning - A Concept for Enhancing Interactive Forest Planning

Teppo Hujala, Finnish Forest Research Institute, Joensuu Research Unit
Henna Höglund, University of Eastern Finland, School of Forest Sciences
Lauri Mehtätalo, University of Eastern Finland, School of Forest Sciences
Jouni Pykäläinen, Finnish Forest Research Institute, Joensuu Research Unit

Increasing the role of the small-scale forest owner's perspective in forestry advisory has been considered one way to tackle the challenge of changing forest ownership patterns. In a broad sense, this principle has been actualized, for example, in voluntary conservation programmes, the concepts of owner-driven forest planning and adaptive decision analysis as well as in customer segmentations based on various forest owner typologies worldwide. However, small-scale forestry research has thus far focused less on the actual root-level communication between a forest owner and a forest advisor. Meanwhile, the science of adult education has developed useful new concepts for approaching the learning processes among advisory interlocutors. In triological learning, collaborative knowledge creation happens via shared knowledge objects, i.e. mediating artifacts. Recognition of the meanings that the other person gives to each artifact is significant for the triological approach. This presentation introduces triological learning in more concrete terms for the context of forest planning. Two interview-based case studies, incorporating altogether 26 family forest owners from eastern Finland, are used to demonstrate how different artifacts receive meanings when owners talk about their forests, forestry operations and their forest-related anticipations. The qualitatively analysed evidence shows that a map of stands (or an aerial photograph) works as a uniform mediator for conversations and that owners' own material, such as an earlier forest plan or records of conducted operations or timber sales, complements the learning material. The findings encourage using artifact-focused approach in further action research aiming to improve mutual triological learning in interactive forest planning.

Kainer, Karen A.

Partnering for Greater Success: Engaging Local Stakeholders in Research for Tropical Forest Management and Conservation

Karen A. Kainer, University of Florida

Maria L. DiGiano

Amy E. Duchelle

Lúcia H.O. Wadt

Emilio Bruna

Jonathan L. Dain

Local communities are important stakeholders in resource management and conservation efforts, particularly in the developing world. Although evidence is mixed in suggesting that these resident stakeholders are optimal forest stewards, it is highly unlikely that large tracts of tropical forests will be conserved without engaging local people who depend on them daily for their livelihoods. Stakeholders, who reside in biodiverse ecosystems like tropical forests, are the largest direct users and ultimate decision makers of forest fate, can be important investors in conservation, harbor local ecological knowledge that complements Western science, and frequently have long-term legitimate claims on lands where they reside. Research partnerships with local stakeholders can increase research relevance, enhance knowledge exchange and result in greater conservation success. Different phases of the research cycle present distinct opportunities for partnership, with flexibility in timing, approaches and strategies depending on researcher and local stakeholder needs and interests. Despite being the last step in the research process, dissemination of results can be the best starting point for researchers interested in experimenting with local stakeholder engagement. Still, tropical biologists might not choose to partner with local people because of lack of institutional rewards, insufficient training in stakeholder engagement, insecure research infrastructure in community settings, and time and funding limitations. Although not appropriate in all cases and despite significant challenges, some biological scientists and research institutions have successfully engaged local stakeholders in the research process, proving mutually beneficial for investigators and local people alike and resulting in important innovations in tropical biology and conservation.

Karki, Seema

Collective Actions by Community Forest User Groups in Conserving Forest to Halt Deforestation and Degradation by Controlling Forest Fire: Linking Science to Practice, a REDD Case Study of Three Watersheds in Nepal

Seema Karki, International Centre for Integrated Mountain Development

Bhaskar Singh Karky

Rajan Kotru

Sudip Pradhan

At the national level in Nepal, community's participation in managing and conserving forests to rehabilitate and restore degraded landscapes are now widely promoted and enabled by the government policy. At the international level, an incentive based mechanism Reducing Emissions from Deforestation and Forest Degradation (REDD) is being discussed under United Nations Framework Convention on Climate Change (UNFCCC) to recognize and incentivize the role of community people in conserving forests. If and how global incentive-based mechanism under REDD could further promote sustainable forest management and enhance the conservation of natural forests while principles of inclusiveness and equity are maintained, is the key question being researched. This paper analyzes performance-based payments made under REDD mechanism to measure and monitor if such additionality can bring incentives to promote better forest management. Forest fire is considered as one of the main drivers of Deforestation and Degradation (D and D) and, how REDD payments can spur conserving communities to curtail this will be discussed by this paper.

Karppinen, Heimo

Forest Owners' Stand Improvement Decisions: Application of the Theory of Planned Behavior

Heimo Karppinen, University of Helsinki, Finland

S. Berghäll

The theory of planned behavior (TPB) is applied in the context of Finnish non-industrial private forest owners' decision-making. Forest owners' stand improvement intentions are investigated empirically on the basis of nationwide mail inquiry data (n=2097). Stand improvement intentions are predicted from forest owners' attitudes, subjective norms (e.g. the effects of extension officers) and perceived behavioral control factors (e.g. time budgets, own physical limitations, shortage of labor force). The chosen approach enables also the analysis of the components of attitudes and norms, i.e. beliefs and their evaluations and normative beliefs and motivation to comply with referents. In addition to the theoretically grounded factors, the effects of forest owners' demographic characteristics and ownership objectives as well as the use of own labor force in silviculture and former experience in stand improvement are analyzed. The analysis methods comprise beside cross-tabulations and means also simultaneously estimated path models, i.e. structural equation models. According to the study results, most forest owners believe that stand improvement is economically profitable and improves the scenery and accessibility within the forest. A majority of owners also regard stand improvement work as healthy physical exercise.

Kilgore, Mike

A Nationwide Assessment of State-Level Carbon Storage and Carbon Market Assistance Programs for Family Forest Owners in the U.S.

Kristell Miller, University of Minnesota, Dept. of Forest Resources

Stephanie Snyder, USDA Forest Service, Northern Research Station, St. Paul, MN.

Mike Kilgore, University of Minnesota, Dept. of Forest Resources, St. Paul, MN.

Dennis Becker, University of Minnesota, Dept. of Forest Resources, St. Paul, MN.

Cecilia Danks, University of Vermont, Rubenstein School of Env. and Nat. Res., Burlington, VT

Susan Charnley, USDA Forest Service, Pacific Northwest Research Station, Portland, OR

In the absence of a federal climate bill limiting CO₂ emissions, U.S. states and regions are moving forward with their own initiatives to address climate change. Consequently, interest in carbon sequestration as a means of addressing climate change is growing. Forest carbon offset projects offer great potential as a means of sequestering atmospheric carbon. Family forest landowners, owning 40% of the forest land in the U.S., may be especially well positioned to participate in such efforts. However, we contend that landowners will need assistance understanding the science of carbon sequestration, how forest carbon offset programs work and how they can manage their lands to achieve additional carbon storage. Currently, little is known about the availability of, and demand for, programs that assist family forest landowners in managing their forests for carbon storage or gaining access to carbon markets. To address this information gap, we conducted a national survey of state forest agency administrators to assess the demand for carbon management assistance from private forest landowners, identify important barriers to carbon management and/or carbon market participation, and gather information regarding state-funded assistance programs. The study found that family forest landowner awareness of and interest in managing to increase carbon storage or selling carbon credits is currently low, and few states have programs that offer assistance specifically in these areas. Yet, some states indicate that the future demand for these activities, and the need to assist family forest owners in these areas, is likely to grow.

Kilgore, Mike

Forest Carbon Offset Projects – Are Family Forest Owners in the U.S. Willing to Participate?

Mike Kilgore, University of Minnesota, Dept. of Forest Resources

Kristell Miller, University of Minnesota, Dept. of Forest Resources, St. Paul, MN

Stephanie Snyder, USDA Forest Service, Northern Research Station, St. Paul, MN

Family forest lands can be an important contributor to carbon sequestration efforts yet little is known about how family forest landowners view programs that enable them to sell carbon credits generated from the growth of their forest. To address this information gap, we conducted a study to identify and quantify family forest land owner interest in participating in a voluntary carbon market trading program in three U.S. states containing a large amount of family forest land. A mail survey was administered to 2,200 randomly selected family forest owners in the Lake States of Michigan, Wisconsin and Minnesota. A logistic regression model was developed to examine the factors affecting participation in a forest carbon offset project and estimate participation probability. Results show that carbon program characteristics alongside landowner and parcel characteristics are associated with the decision to participate in a carbon credit program. Specifically, carbon credit payment amount, contract length, gender, value placed on other forest amenities, need for additional income, attitude towards climate change, absentee status, land tenure and total acres owned were found to be significant determinants. Our findings indicate that even though Lake States family forest owners are very unfamiliar with carbon trading, a large portion would be willing to participate in an offset project under certain conditions.

Kittredge, David B.

Maintenance, Marketing, and Monitoring: The 3 Ms of Reaching Woodland Owners through a Website

*David B. Kittredge, Family Forest Research Center, University of Massachusetts. Amherst, MA USA
Paul Catanzaro*

The internet has become fully established as an extensive tool for communication, and virtually no organization, program, or effort is complete without a web presence. Many messages and ideas compete for attention however, and it is not merely sufficient to build the website and assume "they will come" and use the information. Our experience over more than 8 years in developing and maintaining web sites for private woodland owners suggests that success is achieved based on the rule of the three Ms: maintaining fresh content, aggressive and creative marketing, and active monitoring to know what works. We describe the types and frequency of content maintenance, the tactics used to market the site, and the results of various methods to monitor visitation and awareness of the site.

Koch, Marc

Sustainable Forest Management of Old Cooperatives in Bavaria

Marc Koch, Technische Universität München, Germany

The concept of Sustainability has its origin in Forestry. Next year we celebrate its 300th “Anniversary” in Germany. Sustainable use of resources is one of the indicators of successfully acting commons or cooperatives.

The genesis of most of the commons or cooperatives in Germany is similar. Centuries ago, parts of the landscape, mostly forests and pastures, were used commonly. This practice led to a common law for the using families respectively their farms or houses. The increase of the population caused deficiencies, so that the old-established groups of inhabitants looked out for ways to protect their claims. Commons or cooperatives were founded in the 18th and 19th century to tie the rights to a certain group of users. Using the former common property became a privilege of a defined group of people. Even the scale of use was regulated. With this procedure they, on the one hand, could secure the sustainable utilisation of the shared areas and on the other hand, they were able to exclude “newcomers”. The founding of commons like these ended in the year 1900 with the inception of a new Civil Law Code in Germany.

In Bavaria, over 950 of these cooperatives are still listed. Many of them are inactive or even want to break up. But there are also numerous cooperatives that managed the change all over the decades. As a part of a greater research project, obviously well-functioning forest cooperatives have been analyzed using qualitative social research methods. This oral contribution is pointing out the success factors of active and exemplary working cooperatives and what obstacles they are facing. Also the goals of Bavarian forest policy relating to small scale forest owners and in particular their impact on the cooperatives will be shown here.

Korhonen, Katri

How to Reach Late Adopters for Voluntary Forest Protection?

Katri Korhonen, University of Eastern Finland

Teppo Hujala, Finnish Forest Research Institute (Metla)

Mikko Kurttila, Finnish Forest Research Institute (Metla)

Adopting the concept and theories of innovations can be useful when analyzing public sector activities in implementing forest policy. In forest biodiversity protection, besides the statutory means, new voluntary instruments have been developed for family forest owners. In Finland, the ongoing METSO-programme can be seen as a policy innovation to be diffused to practice. It is important to consider owners' readiness and motives to adopt new practices. Aim of this study is to find means to promote the voluntary protection among those owners who could, but have not yet participated the METSO-programme. Data comprised interviews of 44 owners who protected their forests in Eastern Finland in 2009. Owners were classified into early and late adopters of innovation, based on the type of initiative and information gathering channels. According to theory, a chasm may exist between early and late adopters due to different expectations about innovation. We studied how to cross this chasm. Results reveal that a common concern among late adopters is relative advantage; whether the compensation from protection reimburses the losses from future cuttings. Protection as an easy source of income, especially when terrain is difficult and timber quality low, should be highlighted to owners. In future, it is necessary to support peer communication and change agents within forest owner communities. Peer relations may increase the observability of protected areas. Further, they may even decrease the need for temporary agreements, since positive experiences from other owners supersede earlier negative experiences of top-down nature protection programmes.

Kronholm, Thomas

Understanding the Reproduction Process (Organization Renewal) of Forest Owners' Associations in Sweden

Thomas Kronholm, Swedish University of Agricultural Sciences

The Swedish forest owners' associations (cooperatives) have been able to increase their number of members but are facing problems with getting people involved and thereby to renew their member organization. Since many of the current members are getting old this is an urgent issue for the associations. According to the reproduction perspective, introduced by Yohanan Stryjan in his work on cooperatives, members should be responsible for this process in a member steered organization. The objective of this study was to increase our understanding of the reproduction process (organization renewal) in forest owners' associations. Based on 15 qualitative interviews with district board members of a forest owners' association the characteristics of today's members was studied; their motives to volunteer, their relationship to the organization and the organizational practices and routines in recruitment of members and volunteers. The results show that board members are very traditional forest owners, often with a family legacy in the association and with strong collective values, and are not representative for all groups of members. Further, district board members have limited involvement in the recruitment of new members; instead this is seen as a task for the officials employed by the association, which contradicts with the reproductive perspective and might decrease the association's possibilities to maintain as a member steered organization. Instead the association might develop into a member owned company solely run by professionals. Our conclusion is that the member organization needs to retrieve the initiative in the reproduction process if they want to preserve the traditional values and practices of the association.

Kush, John S.

Longleaf Pine: Providing Opportunities for Landowners Beyond Belief

John S. Kush, Longleaf Pine Stand Dynamics Laboratory, Auburn University School of Forestry & Wildlife Sciences

John C. Gilbert, Longleaf Pine Stand Dynamics Laboratory, Auburn University School of Forestry & Wildlife Sciences

Rebecca J. Barlow, Longleaf Pine Stand Dynamics Laboratory, Auburn University School of Forestry & Wildlife Sciences, Alabama Cooperative Extension System

Longleaf pine (*Pinus palustris*) dominated the southeastern landscape for millennia prior to European settlement; this is a fact of its evolution and natural history. As the original longleaf pine forests were harvested, there was little regard for regeneration; “the supply of wood was endless.” Through time, the demand for fiber products grew, and because it was viewed as a “slow growing” species, interest in managing longleaf declined in the South. In response, loblolly pine (*P. taeda*) plantation management dominated for decades. Forest managers did not seriously consider longleaf pine in their management plans because they believed that it had poor survival and slow early growth compared to loblolly and slash pines (*P. elliottii*). Today, the southern landscape and markets are changing. Timber markets are no longer what they were. Landowners have objectives beyond management for timber, but few believe longleaf can compete with loblolly and slash.

As data begins to emerge from long-term studies, evidence indicates that many long-held beliefs may need to be reconsidered. These studies show that the long-term growth rate of longleaf is actually equal or superior to other southern pines. In addition, recent spikes in reforestation costs across the Southeast may limit landowner options, making natural regeneration an appealing alternative. Income potential from non-timber forest products such as pine straw is also an overlooked opportunity. This presentation will provide evidence that longleaf pine is not as intolerant, or as slow a grower as many believe, and that it is well-suited for management on a small-scale.

Leahy, Jessica

Examining the Lack of Succession Planning among Family Forest Owners in Kennebec County, Maine

Jessica Leahy, School of Forest Resources, University of Maine, Orono

Crista Straub, Sustainability Solutions Initiative

Michael Quartuch, School of Forest Resources, University of Maine, Orono, ME

Kathleen P. Bell, School of Economics, University of Maine, Orono, ME

Judy Colby-George, School of Economics, University of Maine, Orono, ME

Blair Vanderlugt, School of Economics, University of Maine, Orono, ME

Family forests in the United States are poised to experience an unprecedented number of land exchanges in the near future. The USDA Forest Service estimates that nearly 20 percent of all family forests will change hands in the next five years. Family forest lands are often held by aging landowners who face important decisions about the future of their land. The National Woodland Owner Survey showed that over half of all family forest landowners were over the age of 55 and retired. Our study examined succession planning actions taken by a representative sample (mail survey with response rate ~50%, n=393) of family forest landowners in Kennebec County, Maine. Using landowner responses to summarize actions, we found low rates of succession planning activities. Legal actions, such as creating a will that declares heirs to the land, were more common than communication actions, such as verbally sharing wishes for land stewardship with heirs. We created two logistic regression models to identify land, socio-demographic, and attitudinal factors that influence the probability that a landowner has taken legal or communication actions. The results can be used by outreach experts to engage landowners more effectively in succession planning. Ultimately, the research will help landowners and their heirs create succession plans that lead to their desired outcomes.

Liechty, Hal O.

The Potential for Using Agroforests for Bioenergy Production in the Lower Mississippi Alluvial Valley

Hal O. Liechty, School of Forest Resources, Arkansas Forest Resource Center

Michael Blazier, LSU AgCenter

Matthew Pelkki, School of Forest Resources, Arkansas Forest Resource Center

Don White Jr., School of Forest Resources, Arkansas Forest Resource Center

Zachary Robinson, School of Forest Resources, Arkansas Forest Resource Center

Emerging bioenergy markets have the potential to provide new revenue streams to landowners in the Lower Mississippi Alluvial Valley (LMAV). Many farmers in this region have at least a portion of their ownership in marginal soils which provide low economic returns from row crop agriculture but might be suitable for bioenergy crop production. Cottonwood and switchgrass are two species native to this region which grow on a wide range of soils and produce significant amounts of cellulosic biomass. Combining these two species in agroforests may offer a flexible system for providing both annual and periodic harvests of biomass along with important ecosystem services such as carbon sequestration, nutrient retention, and wildlife habitat. Agroforest with different proportions of cottonwood and switchgrass cover were established on marginal soils at three sites in Arkansas and Louisiana during the spring of 2009. Switchgrass and cottonwood production at the most productive sites was respectively 16.2 and 4.6 dry Mg/ha in 2011. Small mammal abundance and diversity was greater within the switchgrass and cottonwood cropping systems than within adjacent areas planted to soybeans. Soil water nitrate concentrations in these perennial crops were generally lower than those in areas planted to a rotational soybean-grain sorghum crop. Initial results suggest that significant biomass production from cottonwood and switchgrass can occur on marginal soils in the LMAV but production can differ significantly among soils. Where establishment and production is adequate, ecosystem services appear enhanced by cottonwood and switchgrass production.

McGill, David W.

Do You Know Your Neighbors? Results of Across-Boundary Survey In West Virginia, USA

David W. McGill, West Virginia University

Megan McCuen

The federal push to bring agencies together in an “all lands” approach to landscape scale management requires the participation of private individuals. As private individuals own the majority of the woodland landscape in the eastern US, it is essential to learn about how to engage this important group of stakeholders in conversations concerning wild land, woodland, and agricultural lands conservation. Recent cross-boundary research has made inroads to understanding how willing individuals and organizations are to work with others who share borders or landscapes. We carried out a mail-based questionnaire to explore to what degree West Virginia woodland owners interact with their immediate neighbors, i.e., owners that share boundaries. Our study concern two primary questions:

Q1: Do new woodland owners connect with their neighbors to an equal extent as longer tenured landowners?

Q2: Does cross-boundary collaboration vary in quantity and quality among the various Sustainable Family Forest Initiative landowner categories?

This presentation will summaries the results of the survey and attempt to answer these questions.

Moore, Elizabeth A.

Agroforestry and Refugee/Host Community Cooperation: A Case Study of Central African Republic Mbororo and Host Country Nationals in the Eastern and Adamaoua Provinces of Cameroon

Elizabeth A. Moore, Virginia Tech

John F. Munsell

Since 2005, an estimated 60,000 refugees from the Central African Republic (CAR) have crossed into Cameroon's East and Adamaoua provinces. The Diaspora, often referred to as the hidden Darfur, is comprised predominantly of Mbororo, a tribe of nomadic cattle herders that have fled their villages in CAR due to violence, insecurity, and frequent kidnappings. In 2007, UNHCR began to register and provide services for CAR refugees, and they have settled on the outskirts of hundreds of villages. The scattered arrangement creates challenges in providing support, care, and protection from a centralized humanitarian perspective, but could better facilitate integration. Having lost most of their herds, the CAR refugees are adjusting to a different way of life. Food security is a critical concern, as are the long-term sustainability of local natural resources and good will between refugees and host nationals. Production and conservation goals could be achieved through the use of agroforestry and various humanitarian initiatives are in the formative stages of promoting such techniques as live fencing, *Moringa oleifera* production, and other nutritious tree/shrub cultivation. Objectives include providing refugees with strategies for producing nutritious food, intercropping of trees, crops, and livestock to conserve natural capital and prevent perceptions of exploitation among host communities. This case study explored preferences of agroforestry techniques, perceptions of integration, and collaboration potential between refugees and host communities. It used participant observation, visual illustrations, and semi-structured interviews. Results demonstrate preferred agroforestry practices among the refugee and host community populations and how those preferences translate to potential cooperation.

Nadeau, Solange

Informing Forest Policy with a Snapshot of New Brunswick Non-industrial Forest Owners' Attitudes, Behavior, Stewardship, and Future Prospects

Solange Nadeau, Natural Resources Canada

Thomas Beckley, University of New Brunswick

The forest ownership pattern in the Maritimes is quite different from what exist in the rest of Canada; with an important portion of the forest in that region belonging to small private forest owners. In the province of New Brunswick, this group owns roughly a third of the province's forests (1.7 millions hectares). Thus in developing provincial forest policy, it is important to understand the values, aspirations, practices and perspectives of the owners of small private forests. In recent years, the forest sector in New Brunswick has suffered from the economic downturn. In an effort to reflect on the future and the needs of this sector, the province has appointed two Task Forces. One had the mandate to look at the contribution of the private forests to the provincial forest sector. To inform the work of that Task Force, we conducted a survey among a random sample of small private forest owners. The survey aimed at providing decision-makers and forest stakeholders with a profile of small private forest owners in the New Brunswick. The presentation will highlight survey's results pertaining to the socio-demographic profiles of the owners, the characteristics of their forest estate, their values, and the uses they make of their forests. We will also briefly discuss their attitudes toward key forestry issues such as land stewardship, conservation, forest management, ownership rights and financial issues. We will conclude with insights about provincial forest policies and programs related to small private forests.

Narine, Lana Landra

Availability of Woody Biomass for Energy- A Social Perspective from Non-Industrial Private Forest Landowners in the Great Lakes Region

Lana Landra Narine, Department of Forestry, University of Missouri

Francisco X. Aguilar

Steve Shifley

Charles Nilon

While there is expected to be significant growth in the demand for woody biomass for energy in the U.S. Lake States region (Michigan, Minnesota and Wisconsin), the supply side needs to be comprehensively examined for the social availability of the cellulosic resource. Nearly 60% of forestland in the Lake States are owned by private forestland owners and non-industrial private forest landowners (NIPF) represent 92% of this total. Rendering the decision to supply from this ownership group is crucial for determining social feedstock availability. A mailing database consisting of 4,190 NIPF landowners who own at least 20 acres of forestland located within or beyond existing wood product market procurement areas was generated. A mail survey following Dillman's Tailored Design Method was sent to these landowners to gauge their knowledge and perceptions on harvesting woody biomass, their engagement in forest management activities and future plans to conduct management activities, reasons for owning land, interest in public incentive programs, willingness to accept different price offers for harvesting timber for traditional wood products and woody biomass for energy and finally their demographic information. The results from this survey provide an analysis of the factors (including price sensitivity) affecting landowners' willingness to supply biomass to contribute towards the comprehensive evaluation of woody biomass availability for bioenergy in the U.S. Lake States.

Nuss, Meagan L.

Adoption of Small-scale Bioenergy Systems in Rural Communities in the US Pacific Northwest

Meagan L. Nuss, College of Forestry, Oregon State University, Corvallis, OR

John C. Bliss

Using biomass to generate electric, thermal, or liquid fuel energy has gained prominence in international discourses related to climate change, energy security, and rural sustainable development (Nielsen-Pincus and Moseley 2009; Nicholls et al. 2009). Such bioenergy systems are embedded in complex interactions of social, economic, and ecological factors (Buchholz et al. 2007), and vary widely with respect to feedstock requirements, scale, conversion technology, and other production attributes. Although conventional economies of scale may favor centralized large-scale systems (Buchholz and Volk 2008; Burton and Hubacek 2007), small-scale distributed systems may be able to provide greater benefits to local communities by leveraging flexibility, innovation, participation, and diversification (Buchholz et al. 2007; Gaudreau and Gibson 2010; Johansson et al. 2005; Mirata et al. 2005; Brown and Mann 2008; Milder et al. 2008; Antizar-Ladislao et al. 2008). In the Dry Forest Zone (DFZ) of the U.S. Pacific Northwest, multiple small-scale heat and cogeneration (heat and electricity) bioenergy systems have emerged over the past decade (Davis et al. 2010). These developments have included both geographic clusters of biomass boilers implemented for commercial and institutional use, and an integrated biomass energy campus model with diversified bioenergy products. This research employs a case study approach to examine attributes of these two systems, factors affecting their adoption, and their potential as a rural community development tool. Using an integrated framework of sustainability and resilience (Buchholz et al. 2007; Gaudreau and Gibson 2010), we consider potential social, economic, and ecological impacts of adoption of small-scale bioenergy systems by rural communities. Methods include the participation of a regional advisory board, local and regional key informant interviews, analysis of secondary data, and system descriptions.

Ota, Ikuo

The Meaning of Forest Possession for Small-Scale Owners in Japan: How to Get and Why to Keep the Forest?

Ikuo Ota, Ehime University

Abstract: This study aims to provide an idea about the meaning of owning forest land for small-scale forest owners in Japan. The author conducted a questionnaire for 200 private forest owners in Tokushima Prefecture, and acquired some interesting results. A great majority of forest owners inherited their forest land from their parents and are willing to succeed it to their children. Most of them are not much interested in producing timber because it usually does not make money. Not a small number of forest owners doesn't know exact place nor boundary of their property. Therefore, it is not easy to conclude some reasonable purposes of owning forest land for many of such owners. In other words, inherited family property is the only reason why small-scale forest owners continue to possess their forest land.

Perdana, Aulia

In Competition: Smallholder Teak Producers in Java, Indonesia

Aulia Perdana, World Agroforestry Centre (ICRAF) Southeast Asia Regional Office

Smallholder farmers managing their own teak production system typically lack established marketing strategies and are unaware of the underlying competition. The study investigates the market characteristics, value chains, and factors that force small scale teak producers to compete in the lesser-explored local teak market in Indonesia. This situation is representative of the teak producers in Java, Indonesia, who are becoming more important due to the decline of teak production from state owned plantations. At the macro level, smallholder teak producers irrefutably compete with those well established, state-owned forest enterprises. However, farmers face barriers in competing into the smallholder teak market, which includes financial resources, and tree production and market knowledge; all of which bear on product quantity and quality. Furthermore, farmers must deal with the overwhelming bargaining and profit-eroding power of buyers. These impediments contribute to the absence of an effective smallholder marketing strategy. The study identified opportunities and approaches for improving the efficiency, competitiveness and the income of farmers linked to smallholder teak value chain.

Põllumäe, Priit

Understanding Forest Owners' Behavior and Values as a First Step to Encourage Cross-boundary Cooperation

Priit Põllumäe, Estonian University of Life Sciences

Henn Korjus

Forest ownership in Estonia is in its youth – twenty years after the start of the restitution and privatization process roughly half of the forests are in private hands i.e. ~1 M ha. Although the first forest owners organizations emerged in the mid 90es the rate of cooperation is still rather slow – only 6% of forest owners (out of ~80 000) are members of FOA-s. The National Forestry Development Programme (NFDP) 2020 puts forward ambitious goals – 500 000 ha of private forests should be covered by owners with FOA memberships (baseline 150 000 ha) and during the 10 year period these forest owners should put 5 M m³ of wood on the market (baseline is 65 000 m³). The policy goals are quite straight forward, yet we argue that this kind of one-sided approach towards cooperation might not lead to desired results. Using datasets from FOA surveys conducted in 2007 and 2011 we aim to identify the main characteristics and differences between members who belong to FOA-s and those are not engaged with cooperative actions. Special attention is put three aspects – future management plans, harvesting decisions and perceived values. Since policy goals are usually set to encourage people to behave in a desirable way we draw some recommendations on how to achieve the goals set in the NFDP.

Pykäläinen, Jouni

Conversational Versus Computer-aided Forest Planning Service

Jouni Pykäläinen, Finnish Forest Research Institute

Teppo Hujala

Despite active research oriented method development, computer-aided forest planning has been rare in Finnish family forestry. This study sought to figure out the present attitudes towards computer-aided planning service among Finnish family forest owners. Explicitly defined conversational and computer-aided planning approaches were first introduced to selected 30 forest owners via an online multimedia application. The same application was also used for collecting the owners' opinions about the alternative service modes. The conversational planning begins with a field trip where the forest owner can tell his or her wishes to the forest planner. After that, the planner produces several alternative forest plans. Finally, the forest owner and the forest planner compare and evaluate the alternative plans towards the owner's goals. In the computer-aided planning, the owner's decision making is supported by utilizing a forest planning software. This means, among other things, introducing the production possibilities of forest and the effects of different goals on forest management. According to the feedback, almost all forest owners, who participated in the study, would be willing to take part either in the conversational (14 owners) or computer-aided (15 owners) planning. Thus the present results indicate that both the conversational and the computer-aided planning approaches are needed when striving for client-oriented planning services in non-industrial private forestry.

Riemann, Rachel

Sustaining Forested Landscapes in the Long Term: Knitting Landowner, Municipal, Forest Industry, and Other Stakeholder Support in the Development of a Regional Conservation Plan and Toolkit for the Rensselaer Plateau

Rachel Riemann, Rensselaer Plateau Alliance

Jim Bonesteel

It is not unusual today to see a forested landscape under development pressure—a forested landscape that provides forest products, numerous ecosystem services, recreation opportunities, wildlife habitat, cultural history, and home for several rural communities. Development pressures, economic insecurity, and benign neglect can unwittingly combine forces to threaten the existence and/or healthy function of forested landscapes in rural areas, particularly those in amenity-rich areas or within moderate traveling distance from urban centers. The Rensselaer Plateau in eastern New York is one such area. It is one of the largest and most ecologically intact native habitats in New York, covering about 105,000 acres within 30-40 minutes of the Capital District urban areas. Forest industry is still active, but is under economic distress. Recreation opportunities bring 300,000 visitors each year. None of this has yet brought back the jobs which were lost when small industries left, resulting in limited employment, services, and tax revenue for small plateau communities. Similarly, opportunities for landowners can be unknown or less than fully developed. How do we protect and sustain this forested system that extends into multiple municipalities, is in an area that tends to dislike planning, and is in a region of varied and usually limited landowner, municipal, and county financial resources? The Rensselaer Plateau Alliance has used a grass-roots approach including education, community involvement, cross-boundary cooperation, information gathering, and systematic collaboration with landowner needs, attitudes, practices, and perceptions. This paper will describe the approach used and the progress to date as the regional conservation plan and toolkit emerge.

Roshetko, James M.

Smallholder Teak Systems on Java, Indonesia: Income for Families, Timber for Industry

James M. Roshetko, Copenhagen University

Agus Astho

Dede Rohadi

Nurin Widyani

Gerhard S. Manurung

Anies Fauzi

Purnomo Sumardamto

Teak is among the most valuable timbers in Indonesia with international and domestic demand generally exceeds supply. Java is the center of teak production in Indonesia. As in other teak producing countries, the decline of plantation production has created opportunity for smallholder producers. Approximately 1.5 million Javanese households grow teak, managing 444,000 ha of mixed cropping systems, mainly on degraded land. Those families are independent growers providing raw material for the thriving Java teak furniture industry. The viability and profitability of smallholder teak production systems are threatened by poor silvicultural management which yield small quantities of low value timber. Smallholder producers are aware of this shortcoming, but have difficulty adapting better silvicultural management due to a lack of capital and limited ability to wait the duration of a rotation before needing returns. Additionally, most smallholders produce teak with an array of other crops to met short- and medium-term livelihood needs. Working in communities in Yogyakarta on Java, the authors conducted a number of studies to identify solutions that enable farmer producers to mitigate the threat mentioned above and improve the benefits to their families (income) and society (quality timber supply). A baseline study, teak system inventory, and management survey were conducted to identify existing conditions and practices. Participatory silvicultural trials were conducted on farms to identify management options appropriate for smallholders' conditions. Based on research findings guidelines for improved smallholder teak production were developed and evaluated with farmers. The paper provides recommendations for improving economic returns for smallholder teak producers.

Ruseva, Tatyana

Exploring Variations in Landowners' Social Networks: The Effect of Harvesting Activity, Resource Professionals, and Ownership Size

Tatyana Ruseva, Appalachian State University

Social interaction is an effective mechanism for information and resource sharing among family forest owners. While growing interest in landowners' social ties to others examines various facets of their networks, such as size and composition, little research to date has compared the structural and compositional network characteristics across subgroups of landowners (Knoet & Rickenbach 2011; Korhonen, Hujala, & Kurttila, 2011; Kueper & Sagor, 2011; Rickenbach 2009). This paper explores differences and similarities in the personal networks of forest owners. It focuses on three sources of variation expected to shape the structure and content of landowners' networks, namely: harvesting activity, information sources used, and ownership size. Egocentric network data come from interviews with forty-two forest owners in south-central Indiana, United States, supplemented by structured survey responses. Differences in the distribution of network measures (size, diversity) between subgroups help inform co-variation between owner attributes and personal network structure. We find that landowners who recently harvested timber and used resource professionals as a source of information had on average three more network members than those, who did not harvest and did not use resource professionals. Additionally, results from the nonparametric tests show that ownership size matters, and that landowners having 50 acres of land (or more) had larger and more diverse networks than those owning smaller parcels. This study contributes to the literature on social interaction and social influence in private forestry, and to the burgeoning research on social networks in natural resource management, more broadly.

Ryan, Mary

Economic and Behavioral Factors Motivating Private Afforestation Decisions in Ireland

Mary Ryan, Teagasc: Agriculture & Food Development Authority

Forestry investment has been identified as a means of promoting economic development in rural areas. In addition to their importance for timber production, forests represent a multi-faceted resource that enhances the environment, promotes biodiversity, sequesters atmospheric carbon and facilitates recreational activity. However, rates of planting in Ireland lag far behind levels that would be expected from a comparison of the returns from farm forestry with competing agricultural alternatives. A nationally representative survey of farm operators in Ireland was undertaken with the aim of providing a framework for better understanding farmers' behaviour in relation to the decision to enter into forestry. The findings have implications for not only understanding participation in farm forestry but also for understanding the motives that drive the decision making of farmers across a diverse range of activities. As in other enterprises, maximising financial returns are likely to be important to farm operators. That said, the evidence presented suggests that farmers consider a much wider set of goals when making decisions in relation to their farm activity. Specifically, the results presented here provide rare quantitative evidence that strong lifestyle and productivist motivations act as a disincentive to farmers in converting land to forestry. We conclude that the design of policies aimed at encouraging greater rates of private planting need to be guided by a better understanding of the motivations and attitudes of farmers.

Sabastian, Gerhard

Influence of the Household and Farm Attributes on Management Adoption of Smallholder Timber Production Systems in Gunungkidul Region, Indonesia

Gerhard Sabastian, Fenner School for Environment & Society

Peter Kankowski, Fenner School for Environment & Society,

Ryde James, Fenner School for Environment & Society

Emlyn Williams, Statistical Consulting Unit, Australian National University, Canberra, Australia

Agroforestry systems have been recognized as valuable for integrating local economic needs and environmental conservation; however, little of the agroforestry adoption research has explored farmers' decisions to manage their land and timber trees based on household conditions and farm characteristics. This paper examines key factors of household and farm attributes affecting on-farm tree growing and management adoption based on investigation of traditional agroforestry using logistic regression approach in three different models. A total of 152 household heads who participated in land and timber tree management to a similar group of 115 household heads who did not participate in the management were randomly selected and surveyed in Gunungkidul region. The household condition model shows the performance of only gross incomes of both on-farm and off-farm significantly influenced land and timber tree management when all household condition variables were considered together; while the farm characteristic model confirms total area managed as the significant variable. The composite model only selected the gross income of the on-farm and off-income variables based on the significance of improvement as the determining factor affecting the likelihood of managing land and timber trees. Both the household condition model and the composite model explain that farmers who had on-farm income around 1.8 times more likely to manage their land and timber trees intensively, compared with the farmers who did not manage the land and timber trees. Meanwhile, the probability of applying management principles to land and timber trees increased by enlarging the total area managed for almost two times more

Sagor, Eli

Considerations in the Collection And Analysis of Private Forest Owner Personal Network Data

Eli Sagor, University of Minnesota Extension

A variety of human and ecological changes will make active forest management increasingly important in order to maintain forest health and productivity. Implementation of sustainable forest management practices on private forest lands requires a combination of knowledge, skills, and equipment not possessed by most landowners. Landowners' access to sustainable forestry information and sources of assistance may enable or constrain their ability to implement sustainable forest management practices. Personal networks are central to a variety of behavior change models commonly applied to forest landowners, and are increasingly viewed as worthy of study. I used three methods to obtain data on the personal networks of Minnesota forest owners with respect to land management information: generic source categories on a written survey, named personal networks on a written survey, and named networks on a combination of written survey and telephone interview. Named personal networks on the written survey produced the smallest mean network size and range. Reported generic networks were slightly larger (measured as network range), and networks from the combination of written and telephone surveys were substantially larger. The choice of data collection technique also affects analysis opportunities. I'll discuss these differences and their implications on the design of future landowner social network research.

Schelhas, John

Social Acceptability of Biofuels Among Small-Scale Forest Landowners in the U.S. South

Sarah Hitchner, University of Georgia

John Schelhas, USDA Forest Service

The U.S. South is poised to become a major producer of bioenergy, with a wide range of bioenergy technologies in various stages of development. Bioenergy development will utilize forest lands in new ways, thereby bringing about changes in the landscape and creating opportunities for and impacts on forest landowners and rural communities. Rural farms, forests, and communities are highly valued in the South for both economic and cultural reasons. At the same time, many forest-dependent communities are underdeveloped and actively seeking new economic opportunities. The social acceptability of biofuels is contingent on successful navigation through these cross-currents.

Because of the multiple values and perspectives at play across the Southern landscape, we are taking an approach of analyzing bioenergy development broadly in a way that takes into account diverse values, governance processes, and equity concerns. Our analysis is designed to recognize and elucidate the multiplicity of stakeholders and the ways they interact, and to pay particular attention to the multi-scalar dimensions of bioenergy development.

Our ongoing research examines these issues using an integrative analytical framework designed to illuminate different perspectives, as well as trade-offs and synergies arising in bioenergy development. We are conducting ethnographic research in three communities where bioenergy facilities (pellet plants and liquid fuel plants) have been, will be, and are currently operating in Georgia and Alabama. A key goal of our project is to understand how small-scale forest landowners interpret opportunities for bioenergy production and how bioenergy might fit into small-scale forest management systems.

Schneider, Tina

Assessing Reforestation: Performance of Native Species in a Smallholder-Based Reforestation Project in the Philippines

Tina Schneider, Yale School of Forestry & Environmental Studies
Florenca Montagnini, Yale School of Forestry & Environmental Studies
Pacing Milan, Institute of Tropical Ecology, Visayas State University
Marlito Band, Institute of Tropical Ecology, Visayas State University

Primary forest cover in the Philippines decreased from 70% to 3% over the course of the 20th century. In response, between 1960 and 2002, about 1.7 million hectares of land was reforested, primarily with large-scale monoculture plantations of fast growing exotic timber species, such as *Acacia mangium* and *Gmelina arborea*. Most efforts failed due to poor site adaptation, low financial returns for landowners, and poor understanding of local socio-economic dynamics, with survival rates as low as 30%.

In 1993, in response to these challenges, Visayas State University in cooperation with the GTZ developed the Reforestation Farming methodology, combining crops with native tree species at high stocking rates to combine ecological restoration with economic benefits. Reforestation is based on creating a multi-story forest with pioneer and dipterocarp species forming the canopy, fruit trees forming the subcanopy, and crops in the understory. Reforestation was piloted on 26 smallholder sites in the Visayas region between 1993 and 2000.

While Reforestation is considered a success, no overall assessment of the planted sites has been conducted. This study fills this gap through measurement of tree performance across all sites. Interviews were conducted with landowners and project staff on site preparation and management, providing insight into the performance of species across soil types and management intensity. The data show that native species can be planted successfully in degraded lands, and that there are significant effects of successional status of trees, post-planting management, and landowner interest on growth and height of trees planted.

Snyder, Stephanie

Challenges in Characterizing a Parcelized Forest Landscape: Why Metric, Scale, and Threshold Matter

Stephanie Snyder, USDA Forest Service

Michael Kilgore, Professor, University of Minnesota, Dept. of Forest Resources, St. Paul, MN

Kayla Block-Torgerson, University of Minnesota, Dept. of Forest Resources, St. Paul, MN

Steven Taff, Associate Professor, University of Minnesota, Dept. of Applied Economics, St. Paul, MN

Parcelization of private forest land, the fragmentation of forest ownership into smaller blocks, is a growing policy concern because of its demonstrated links to a variety of adverse impacts. Despite the myriad concerns about parcelization, there is no agreement on how to tell when or if a landscape has become parcelized or whether it has passed a threshold such that adverse impacts begin to occur. Several metrics have been cited in the literature as being useful characterizations of parcelization, but no standard measure exists. This creates difficulties in identifying where parcelization is occurring as well as in comparing the magnitude of its occurrence across studies and regions. To address this, we compare three metrics that have appeared in the literature, along with one of our own devising, to determine if they adequately and consistently describe a parcelized forest landscape. We evaluate four metrics: average parcel size, Gini coefficient, Shannon Entropy index, and a new metric (adjusted mean parcel size) for their usefulness in characterizing the extent to which a private forested landscape has become parcelized. Our analyses show that each metric often describes a different pattern of parcelization and highlight problems owing to the fact that each metric appears to capture different aspects of ownership patterns within a landscape. We demonstrate that the choice of metric, scale at which a landscape is assessed, and threshold measures for determining when a landscape is parcelized can greatly influence how a landscape is characterized with respect to parcelization.

Staal Wästerlund, Dianne

What Aspects Influence the Children's Interest to Succeed their Parents as Forest Owners?

Dianne Staal Wästerlund, Swedish University of Agricultural Sciences

The values how children are to behave towards their parents have changed in Western society. One of the effects is that parents can no longer expect their children being willing to succeed as forest owners. A telephone enquiry was made among 300 grown-up children (age 30 to 50) of forest owners in the Northern part of Sweden, to study what aspects influence the children's view on succession. Besides their present willingness to succeed, they were asked to reflect on their forest values and their contributions to the management of the property so far. For the statistical analysis, the CART® program was used to identify and structure the variables that may influence willingness.

As most important influencing aspect the attitude towards income from the forest was found. If the respondent had no interest in income from the forest the risk for no interest in succession was significantly higher than among respondents that had at least some interest in such income. The second most important aspect was the respondent's involvement so far in the management.

Respondents that had not helped their parents with the management were significantly less willing to succeed their parents than respondents that did help. Women were less interested to succeed than men. Women's main argument for their lack of interest was lack of knowledge or the existence of other family members more suitable to succeed her parents. Men argued mainly for lack of time.

The study suggests that the parents' implicit expectations for succession still have a large impact on the child's attitude towards succession.

Tyrrell, Mary

Understanding Connecticut Landowners' Attitudes and Objectives

Mary Tyrrell, Yale School of Forestry & Environmental Studies

Christopher Martin, Connecticut Department of Energy & Environmental Protection

Brett Butler, USDA Forest Service

Even though Connecticut is one of the most densely populated states in the United States, it is also one of the most heavily forested - nearly 60% of our land base is in forest and a full 77% is owned by private landowners. This means private landowner management and ownership decisions have enormous influence over the quality and extent of our forests - now and into the future.

Two of the greatest threats to Connecticut's forest ecosystem health are increased forest fragmentation/parcelization and lack of landowner understanding of forest management and wildlife habitat maintenance and enhancement. We have conducted a survey of 400 private landowners and held focus groups with landowners in three regions of the state in order to better understand landowner objectives, values, and services needed to conserve and manage their land for the long-term. Survey results will be available in mid-2012. Preliminary indications, from the focus groups, are that the vast majority of landowners have little knowledge about forest management, either do not manage their land or manage in an unsustainable way, and are not aware of state and federal assistance programs. This project will provide critical information about landowners that can be used to evaluate and revise current approaches to landowner assistance programs, develop appropriate management recommendations for small scale landowners, and aid in land conservation efforts.

Vilanova, Emilio

Enabling Small Scale Forestry in Venezuela: Taking Action at the Local Scale

Emilio Vilanova, INDEFOR - Universidad de Los Andes

Hirma Ramírez-Ángulo

Gustavo Ramírez

Armando Torres-Lezama

In many tropical countries, the management of natural forest, plantations and other forested lands still falls officially under the responsibility of national forest agencies, big private companies and several other large-scale stakeholders. Consequently, local communities are commonly neglected and the importance of working at the local scale is underestimated. In Venezuela, complex political and institutional reforms are undertaken aiming the participation of local people into decision making on how forests should be managed. Yet, the continuous use of top-down mechanisms, with a high prevalence of governmental impositions severely reduces the possibilities of local initiatives. In addition, other official policies for community forest management, without the proper analysis of local realities, paradoxically have contributed to degradation and deforestation. In this paper, based on three different cases, we use the definition of Small Scale Forestry (SSF) that embraces the concepts, in varying degrees, of benefits for local people and one or more intensive forms of management to provide a wide array of outputs from the forested lands, to outline a group of actions that are needed in order to promote SSF in Venezuela. These include: 1) enhance local involvement in forest management by applying adequate participatory tools to collect information for proper stakeholder identification; 2) in depth revision of current local governance structures to encourage bottom-up decisions; 3) promotion of incentives mechanisms for small-scale forestry enterprises for local employment; 4) adaptation of sustainability guidelines (Principles, Criteria and Indicators) to small-scale operations for permanent monitoring of activities, and 5) application of principles for multiple use of forests.

Vilkriste, Lelde

What Forms the Base for Forest Extension – Needs of Forest Owners or Opinion of Forest Experts?

Lelde Vilkriste, Latvian State Forest Research Institute "Silava"

In Latvia, about 52 % of land is covered by forests and forest sector is one of dominating sectors in national economy. State forests supply about 35 – 45 % of necessary timber to wood processing industry, the rest should come from private sector. Approximately 1/3 of forest area belongs to 140,000 family forest owners whose properties are small scaled (in average 8.2 ha) and fragmented. Statistic data show that family owners are not interested in forest management, except for the situation when timber price is high.

In Latvia, Forest extension system was created in 2000 and had had a rapid development for 5 year period. In next five years several changes and reorganisation of forest administration were done and today most of extension functions move from the State Forest Service to other organisations.

Various opinion polls in last decade were done with the goal to improve forest extension system. This paper presents mainly results on knowledge and needs of private forest owners and a view point of forest specialists on forest extension issues. Different extension tools were analysed and last trends in forest extension were presented.

There is a need for new approach in forest extension. The paper describes how current extension system meets the needs of family forest owners and secures implementation of Forest Policy. Main task of the research is to find solution how to reduce the gap between needs of forest owners and plans of decision makers in extension system. Solutions for improvements in extension system should be based on the research results and lessons learned in reorganization process.

Vilkriste, Lelde

Increasing Role of Local Associations in Extension of Private Forest Owners

*Agnese Trojanovska, Latvia Agriculture University, Forest Faculty
Lelde Vilkriste, Latvia Forest Research Institute "Silava"*

First association of private forest owners in Latvia was established in 1994, but its activities were unsuccessful. Second cycle in development of cooperation starts in 2004 when 44 private forest owner's foundations were established in Latvia with the support of EU finance. Associations provide forestry services as well as advice on forest management issues and timber market. Associations organizes various workshops, seminars and trainings for association members. It is possible to maintain that it is first step to implement peer to peer learning process within associations, their members and service users.

The paper presents results of experts' interviews related different cooperation issues. The analyses of cash flow of association for 2-3 year period provide information on most demanded services and organized activities. Detailed analyses were done for costs to increase knowledge, improve education and communication skills of members of organisation as well as other forest owners.

The results of research show increase in knowledge of forest owner's on forestry issues. The paper gives opinion of effectiveness of investments in developing associations. The role of local associations in education of private forest owners, providing services and enhanced forest management of private forest sector will increase due to diminishing number of forest extension specialists in the State Forest Service and other organisations.

Wilhelmsson, Erik

Cooperative Dilemmas and the Sense of Fellowship - Lessons from “Norra skogsägarna” Forest Owner Cooperative

Gun Lidestav, Swedish University of Agricultural Sciences

Ann-Mari Arvidsson

The main function of a Swedish private forest owner cooperative is to work for an efficient timber market with the goal of optimizing the members' economic results. However, many members have a variety of other goals. Therefore dilemmas may arise when members' decisions are made as joint decisions that can be very different from the individual's own decision. In this paper, the different views of the members, inspectors and managers of Norra skogsägarna private forest owner cooperative will be presented and discussed in relation to the cooperative model suggested by Skår (1981), who claims that a well-functioning cooperative must have a well-developed organizational relationship. Theoretically we look at the mismatch between goal of the cooperative and that of the members in terms of identity, benefits, and agreement. The forest owners' identities and benefits have been analyzed through mode of life theory, while agreement is analyzed through the theory of new institutional organizing and the theory of meaningful communication. We gathered qualitative data by focus groups discussion with members, inspectors and managers. Additionally we used documents and literature published by the actual private forest owner cooperative. Results show that the identity and benefits are viewed differently by members, inspectors and managers, which bring about a shortage of agreement within the organization. We suggest that improvements can be achieved by applying a new institutional way of organization, which will make it easier to create a meaningful communication.

Wilsey, David

Scale and the use of market interventions to integrate forest conservation and economic development objectives

David Wilsey, University of Minnesota

Markets provide forest landowners with an important suite of approaches for integrating natural resource conservation and economic development objectives. In particular, market approaches focused on non-timber forest products received substantial interest over the past two decades. Much emphasis was placed on the Extractive Reserve model, highlighted by Amazonia's seringueiros (rubber tappers), where forest communities collectively managed timber and other forest products extensively and over vast forested tracts. And while the effectiveness of these larger scales approaches at remains unclear, implications of non-timber market interventions for small-scale forestry are even less so. This paper presents scale-related implications for market-based interventions related to non-timber forest products. It provides a review of the literature addressing integrated conservation and development programs and revisits select projects to provide greater insight into the specific ecological, economic, and social issues associated with using market interventions to reconcile conservation and development objectives in small-scale forestry.

Yahya, Ahmad Zuhaidi

Study on the Possibility of Domesticating the Lesser Known Tropical Species *Neolamarckia cadamba* among the Small to Medium Scale Forest Owners in Malaysia

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M.N. Hashim, Forest Plantation Programme, Forest Research Institute Malaysia

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Mahpar Atan, Malaysian Timber Industrial Board

The paper discusses on the domestication of wild *Neolamarckia cadamba* (formerly known as *Anthocephalus cadamba*) and the results from the trial planting of 4-year-old stands among the small to medium scale forest owners in Malaysia. The species is an early-succession species, which grows best on deep, moist, alluvial sites, often in secondary forests along riverbanks and in the transitional zone between swampy and periodically flooded areas. It can also be found naturally in low lying areas up to 300 m above sea level, and open sites with deep moist alluvial soils as pioneer species. The naturally regenerated stands were observed having relatively fast diameter and height growth. Its relative abundance in the lowland forests in Sabah and Sarawak, led to the continuous extraction of the logs and being utilized for the manufacture of plywood and veneers. The creamy-coloured timber is categorized under light heavy hardwood having wood density ranges from 245 to 260 kg m³, and characterized by short fibre length and rather unsuitable for pulp, but acceptable in Indonesia (Sumatra) and cultivated as short-rotation plantation species

With these favourable characteristics, and declining timber resources for the existing wood-based industries, small to medium scale forest owners have accepted this species and currently planting them under normal plantation conditions. The recently collected data obtained from trial planting of 4-year old small scale forest owners in Sabah, have an average volume varies with sites, sites experiencing deep, moist alluvial soils are having better growth as compared with inland soils. The achieved volume ranges from 90.86 to 137.42 (average; 118.86 m³ ha⁻¹) with an annual production of 29.72 m³ ha⁻¹ year⁻¹. Similar studies were conducted by the Forest Research Institute Malaysia (FRIM), on three different sites in Sabah (Sandakan), Sarawak (Sibu) and Peninsular Malaysia (Setul) to verify the suitability of the species if planted outside the normal conditions. Early results showed that the species has negative relationship ($R^2 = 14\%$) between volume growth and distance from water sources, indicating that moisture is one of the requirement for good growth. At four years after planting the achieved volume of the stands was 128.28 m³ ha⁻¹ (Sabah), 92.56 m³ ha⁻¹ (Sarawak) and 80.49 m³ ha⁻¹ (Peninsular Malaysia). Similarly with the relationship between growth and elevation, the achieved growth declined with the increased in altitude (80.49 m³ ha⁻¹).

The results obtained from the domestication study seemed promising only in site-specific areas; however, field observation and data collection will continue to confirm the results and assessment of any occurrence of potential pests or diseases. An innovative works by FRIM to produce uniform and quality planting materials production using leafy cutting techniques and details of the achieved volume are also discussed.

Zobrist, Kevin W.

Online Education for Small Forest Landowners

Kevin W. Zobrist, Washington State University

Landowner education has been shown to be one of the most effective tools to improve land stewardship and reduce rates of conversion of private forestland to development. Challenges exist in reaching this geographically broad and dispersed audience, though, especially with shrinking budgets and Extension and state service foresters that are having to cover larger areas with fewer resources. New online delivery platforms are available that can augment traditional programs to reach more landowners in more places with greater efficiency.

Developing effective online education programs is not as simple as taking existing program content and posting it to the web. Effective online delivery involves extensive planning, design, and a more careful consideration of program material as it relates to academic integrity and copyright. There may also be unforeseen institutional barriers within universities when it comes to publishing Extension education programs online. This presentation will cover key steps for successful online program delivery, identify best practices to avoid pitfalls, and present a review Adobe Presenter as a platform for online delivery of asynchronous landowner education programs.