CINTRAFOR NEWS
Center for International Trade in Forest Products

Winter 2012

Future Forestry Leaders Graduate Student Symposium held at the University of British Columbia

by Ivan Eastin (UW), David Cohen (UBC) and Chris Gaston (FPInnovations)

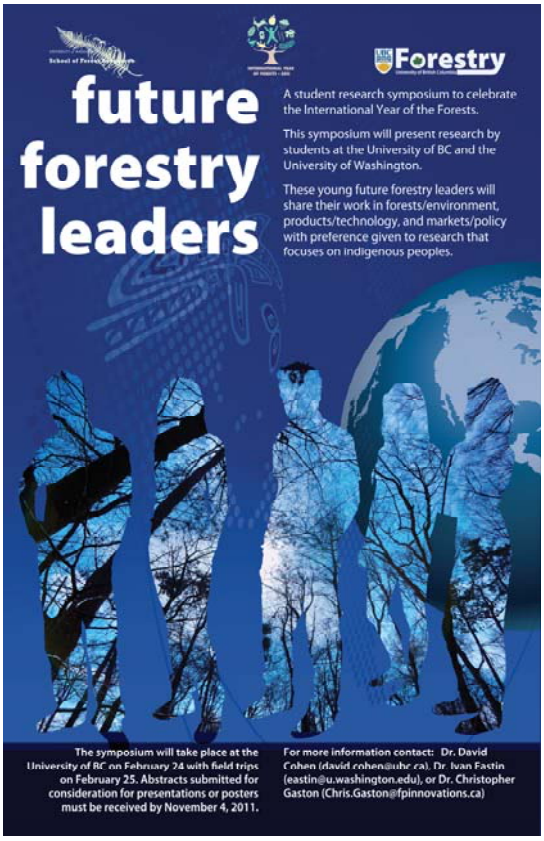
On February 1st, 2011, the United Nations designated 2011 as the UN International Year of the Forest. To help celebrate the conclusion of the International Year of the Forest, the School of Environmental and Forest Sciences (SEFS) at the University of Washington (UW), in collaboration with the Faculty of Forestry at the University of British Columbia (UBC), jointly sponsored an International Graduate Student Symposium. The Symposium, under the theme of "Future Forestry Leaders", highlighted the research being conducted by graduate students at both universities. Held at UBC on February 24th, the Symposium featured presentations and posters of ongoing and recently completed research by 41 graduate students from UBC and UW, with a special emphasis on research focused on Native American and First Nations forestry issues. The Symposium agenda as well as the research abstracts can be viewed at the CINTRAFOR website: www.cintrafor.org. The presentations were also videotaped and will be available on the CINTRAFOR website later this summer.

The Symposium consisted of three plenary sessions followed by a reception and poster session. The three topic areas for the plenary sessions were: Forests/Environment, Products/Technology, and Markets/Policy and each session consisted of six lectures by three graduate students from each university presenting a summary of their research. Prizes were awarded for the top two presentations from each University with Justin Bull and Ling Li receiving awards for UBC and Jake Grossman and Daisuke Sasatani being selected for UW. Prizes were also awarded for the top two posters from each University with Laurel James and Yoshihiko Aga receiving awards for UW and Ana Elia Ramon Hidalgo and Seena Linoj Kumer receiving awards for UBC.

Following the presentations, students attended the Leslie L. Schaffer Lectureship in Forest Sciences featuring Tiina Vahanen, Team Leader of the Climate, Energy and Tenure Division of the Food and Agriculture Organization of the United Nations. The Symposium was preceded by a poster session and reception hosted by the UBC Forestry Graduate Student Association that was attended by well over one hundred graduate students, faculty and industry professionals.

The next day participants visited the Squamish First Nation and learned about their history, land use plan, forest stewardship and forestry business activities. Students were treated to traditional venison stew for lunch followed by an interactive session with a traditional wood carver.

Finally, under a special arrangement with the Forestry Chronicle, the graduate student presentations will be included in a special edition that will be published in the second half of 2012. It was truly inspiring to see not only the passion of these young researchers but the consistently high quality and importance of so much of the research currently under way. After listening to the presentations and viewing the posters one could only look to the future with confidence and optimism given the quality of our future forest leaders.



Summary of SEFS Student Research Presented:

Investment, and Trade and Illegal Logging

Alicia Robbins, School of Environmental and Forest Sciences, University of Washington

Abstract

China's role in the international wood products market is now inextricably linked to markets all over the world. This research explores a cross-section of interconnected issues within China's forest sector, with specific attention to three overarching topics. This research provides an important contribution to understanding China's participation in the trade and processing of forest-based resources and products.

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The Center for International Trade in Forest Products addresses opportunities and problems related to the international trade of wood and fiber products. Emphasizing forest economics and policy impacts, international marketing, technology developments, and value-added forest products, CINTRAFOR's work results in a variety of publications, professional gatherings, and consultations with public policy makers, industry representatives, and community members.

Located in the Pacific Northwest, CINTRAFOR is administered through the School of Environmental & Forest Sciences at the University of Washington under the guidance of an Executive Board representing both large and small companies, agencies, and academics. It is supported by state, federal, and private grants. The Center's interdisciplinary research is carried out by university faculty and graduate students, internal staff, and through cooperative arrangements with professional groups and individuals.

First, the location choice of foreign investment in Chinese wood processing enterprises is examined to understand whether or not the same factors that have been shown to motivate foreign investment in manufacturing as a whole within China also apply to the wood processing subsector, and to assess the effect of roundwood availability on foreign investment in the wood processing sector. This is done by employing two estimation methods: a tobit and negative binomial. Two variables were found to have an impact on investment: the number of specially-designated economic zones and roundwood production.

Second, efficiency metrics are calculated to understand how efficiently Chinese wood processing enterprises operate, given a set of inputs. Using data collected through an enterprise survey conducted in 15 provinces, a stochastic frontier production function is estimated and used to measure technical efficiency for Chinese enterprises. The coefficients for the material and labor inputs proved to be significant, and a mean efficiency score of .70 indicated significant room for efficiency improvements among almost all enterprises.

The last study examines the effects of the removal of illegally logged resources from China's imports originating in five of China's primary source countries for logs on China's domestic production, consumption and trade flows. This is performed through the use of a spatial equilibrium approach by modifying the CINTRAFOR Global Trade Model (CGTM). First a graduated tariff was applied to Russia's exports of coniferous logs to China. Second, changes in the supply elasticities in five countries were applied to production of non-coniferous logs. The magnitude of impact depended in large part in the magnitude of change in the elasticities in both the supply countries and in China. China was evaluated using elasticities that simulated the current harvest quota system, as well as a system that becomes more self-sufficient through increased log production. The results demonstrated that there is a large loss in producer surplus resulting from the imposition of a tariff as compared to methods that approach adjusting supply by a change in the cost structure.

History of fire at the Las Joyas Research Station in the Sierra de Manantlán Biosphere Reserve, Jalisco and Colima, México

Brooke Cassell, School of Environmental and Forest Sciences, University of Washington

Abstract

Fire is one of the most influential factors in vegetation community and succession in the Sierra de Manantlán Biosphere Reserve in Jalisco and Colima, México. A mosaic of low, mixed and high severity fire regimes characterizes the topographically complex landscape with ecosystems ranging from mesophyllous mountain forest to higher elevation pine and oak forest. Some species, such as the culturally important Zea diploperennis maize and the rufus hummingbird rely on open stands maintained by frequent low-severity fires. Others, such as the threatened jaguar, require dense cloud forest, necessitating a careful approach to maintenance and restoration of the landscape. Increases in fuel loadings and change in vegetational structure since the reserve's establishment in 1986 may have changed the fire regime.

We are constructing a tree-ring master chronology and reconstructing fire history from fire scarred trees at pine-dominated sites throughout the reserve, analyzing changes to the fire regime following establishment of the reserve, and examining climatic patterns and their relationship to fire occurrence and severity, allowing for inference about potential climate change impacts. This research will create a baseline of knowledge about the fire regime and historical range of variability, facilitating scientifically informed land and fire management plans. Within the reserve are several thousand indigenous inhabitants who participate in decisions about management related to their communal and ejido lands and who are directly impacted by wildfire and ecosystem alterations.

This will be only the second dendrochronologically obtained fire history south of the Tropic of Cancer in the Western Hemisphere and will contribute to Mexico's larger goal of defining nationwide fire regimes.

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A Research Agenda for Tribal Lands in the United States: Integration of Traditional Ecological Knowledge and Western Science

Christopher Beatty, School of Environmental and Forest Sciences, University of Washington

Abstract

Tribes are intergenerational repositories of traditional ecological knowledge that has guided Indian resource use for thousands of years. Tribal natural resource management deals with complex issues in a world where conditions are changing. Research is of fundamental importance in providing tribal resource managers with the knowledge and tools they need to adapt to changing conditions and better meet their management objectives and responsibilities. Contemporary environmental challenges require contributions of knowledge from both worlds.

This paper will present the results of a national survey sponsored by the Intertribal Timber Council (ITC), an organization of tribes dedicated to advancing the management of forest and other natural resources on Indian lands. ITC recognizes that research activities involving forest and fire management, traditional ecological knowledge, and social/economic factors are vital to improving natural resource management in Indian country. In turn, improved resource management will reduce risk of loss and significantly contribute to the local economies of Tribes and their members. The potential benefits from research activity in Indian Country can be substantially enhanced by strategic, sustained coordination. The survey results will help to prioritize research needs identified by tribal communities, develop recommendations for strategic research plans and initiatives, identify and disseminating information to ITC's membership regarding opportunities to participate in relevant research activities, increasing awareness of research results that are applicable to tribal resource management, encourage and supporting the training and involvement of Native Americans in research to improve the management of Indian natural resources.

The survey was conducted in the first semester of 2011. Participants in the survey included tribal CM/EO, BIA and tribal staff and students. The top research topics of tribal concern were water quality, fish and wildlife, integration of TEK with western science, mechanisms to improve knowledge sharing among researchers and practitioners, and invasive species. Several obstacles to conduct research were identified and concrete recommendations were made. The survey results were presented at a research workshop during the 35th Annual National Indian Timber Symposium in Carlton, MN, June 14-16, 2011. The major findings of the workshop were: Collaboration in research and the research infrastructure between Tribes, Federal Agencies, Universities and Tribal Colleges is essential to integrating traditional knowledge and practices with modern science; The support of Tribal colleges provides a critical link in encouraging tribally relevant research; There is a need to create tribally driven research and experiences provide valuable opportunities for students pursuing natural resource degrees.

Construction Professionals' Environmental Perceptions of Lumber, Concrete and Steel in Japan and China

Daisuke Sasatani and Ivan Eastin, School of Environmental and Forest Sciences, University of Washington

Abstract

Green Building Programs (GBPs) are designed to lessen environmental impacts voluntarily to attempt for choosing more sustainable products and systems for residential and non-residential buildings. GBPs have been popular in European nations and North America, but they were just recently introduced in Asian nations, such as Japan and China. A GBP programs determine what kinds of construction materials and methods are "green"; therefore, it impacts on material choices of construction industry as the GBP become popular. Ideally, a GBP should consider a building's entire life-cycle in terms of environmental impact. Current established life-cycle analysis methodologies are powerful tools to analyze commensurable aspect of quantifiable environmental category, but it is not possible to objectively integrate and quantify the importance of multi-dimensional complicating environmental issues of products and systems used for a building. However, individuals have different opinions on environmental issues perhaps due to their different background.

Since construction professionals, such as builders and architects, are the direct or indirect decision makers whether they adopt a GBP or not, it is critically important to know how these individuals perceive overall environmental issues and environmental friendliness of some materials. To better understand construction professionals' perception in two Northeast Asian countries, Japan and the People's Republic of China, we conducted a series of surveys in 2009 and 2010 at several professional trade shows. First of all, survey question was designed to investigate professionals' perceptions of the relative importance of five major environmental attributes when they choose building materials. Overall, they perceive saving energy and saving water are relatively more important environmental categories compared to using renewable materials, low carbon footprint and using recycled materials. Also, survey was designed to gain insights into respondents' perceptions of the relative environmental performance of the three major structural building materials (wood, concrete and steel) along five environmental categories and overall environmental friendliness. Asian construction professionals perceive lumber is the more environmental friendly materials compared to concrete and steel. Regression analysis shows energy efficiency of home built and the level of pollution generated during the manufacturing process contribute the most to the overall environmental friendliness of the material. Resource sustainability is significantly important in China. CO2 emissions and energy use during the manufacturing process do not significantly impact on the perception of overall environmental friendliness. Chinese and Japanese professionals show similar responses to environmental attributes even though their construction practices are very different.

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Developing a Tribal Brand for Native American Forest Products

Indroneil Ganguly and Ivan Eastin, School of Environmental and Forest Sciences, University of Washington

Abstract

Native American tribes have a long history of natural resource stewardship and sustainable management of forest resources. However, the current economic challenges created by global declines in wood markets are undermining the viability of tribal forest management and forest products manufacture. Given apparent public interest in certification and environmentally-responsible management of forests and the record of sustainable forest stewardship by Native Americans, it is only natural that tribes should consider how best to incorporate these values into a strategy that can provide them with a competitive advantage in the marketplace. Accordingly, three potential tribal marketing strategies are in this research: 1) development of a tribal brand for forest products, 2) development of a tribal forest certification program and 3) development of a tribal cooperative marketing program. The objective of this research project is to assess tribal interest in participating in each of these strategic marketing initiatives and also to obtain the preference of tribal forest managers regarding a specific set of tribal attributes that might form the foundation of a tribal branding program.

A survey was conducted over a period of four months (January to June of 2010) using web-based and paper based survey instruments. Given the focus of the study, measures were taken to maximize the response rate from tribes with relatively larger commercial forest land. Hence, survey strategies were adopted to maximize the response from the Intertribal Timber Council (ITC) member tribes. A total of 54 tribes responded to the survey representing over 69% of the total tribal forest coverage and 67% of the total tribal commercial forest land in the country.

Survey respondents expressed interest in participating in a tribal forest products' marketing program that would showcase the traditional forest stewardship ethic of Native American tribes and the spiritual and cultural respect tribes have for the land, resources, and people. The survey respondents were generally most supportive of a tribal branding program over a tribal certification program or a cooperative tribal marketing program. The study also revealed some differences in the tribes' interest in these various forms of tribal marketing programs, based on their geographical location, awareness of mainstream forest certification programs, and their familiarity with the domestic or international wood products industry. This study also lays out a foundation for developing a tribal forest products marketing strategy designed to enhance the ability of Tribes' to compete in the global wood products industry.

Smallholder Eucalyptus Plantation Forestry in Eastern Paraguay: a Case Study of Silvicultural, Economic, and Environmental Context

Jake J. Grossman, School of Environmental and Forest Sciences, University of Washington

Abstract

Smallholder farmers in Paraguay´s eastern region are increasingly turning to eucalyptus (Eucalyptus sp.) forestry to meet home wood consumption needs and supplement household income through commercialization. Non-native eucalyptus exceeds all other exotic imports and native trees in terms of its speedy growth and tolerance of wet soils. However, plantation forestry of eucalyptus, even at the smallholder level, may alter local hydrology, inhibit the growth of native vegetation and crops, and supplant natural ecosystems. Furthermore, adequate technical extension related to these risks and the proper care of smallholder eucalyptus plantations is lacking in rural areas.

Through semi-structured interviews and field visits with smallholder farmers in four departments in eastern Paraguay, I will characterize the silvicultural methods used by these families and the economic context of their investment in eucalyptus plantations. Furthermore, I will explore the question of the environmental impacts of smallholder eucalyptus forestry, and specifically how, as a form of land use, it complements, replaces, or discourages other forms of land use such as row-cropping, cattle ranching, and conservation of the native Alto Paraná Atlantic forest. These questions about land use speak to the larger issue of whether or not plantations ´´save´´ native forests.

Farmer Perceptions of Indigenous Forest Trees within the Cocoa Landscape in Ghana

Jane Atkins and Ivan Eastin, School of Environmental and Forest Sciences, University of Washington

Abstract

Deforestation and forest degradation in Ghana poses a serious threat to the livelihood of forest-dependent communities and the survival of many endemic flora and fauna species. In addition, the national economy depends heavily on cocoa and timber to provide export revenue and jobs. Throughout Ghana's high forest zone, cocoa farmers make decisions about tree removal and tree retention based on a unique set of criteria. How they perceive trees plays a crucial role in daily management decisions made at the micro level, which in turn influence landscape patterns on the macro level. The research question in this study addressed how Ghanaian cocoa farmers perceive naturally occurring forest trees within their cocoa farms, both with respect to their biophysical interactions with

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cocoa trees and their economic contributions to farmer livelihood.

The research data was collected using an exploratory case study approach that combined ethnographic and survey techniques, and draws on 34 farmer interviews, 34 farm surveys, and interviews with key informants representing diverse stakeholder interests in south central Ghana. The research data was analyzed to identify the important functions of forest trees as perceived by study participants, both as a biophysical component within the farm ecosystem and as an input to the rural economy.

In the most general sense, responses gathered during the interviews suggest that farmer's perceptions of indigenous shade trees on their cocoa farms are both positive and negative. Positive perceptions reflect assumptions farmers may have with regards to the contribution of the tree towards the health of the cocoa farm and any economic value the tree may bring to the farmer, while negative perceptions reflect assumptions of harmful effects of the tree on the health of the farm. The findings from this study reinforce the need to educate farmers on the ecological and economic benefits of retaining trees on their farms. All of the farmers interviewed in this study indicated that their perceptions of trees, positive or negative, affected their management decisions. While the timber value of a tree influenced the farmers' decisions to retain the tree, the perception that a tree was "bad for cocoa" was a more influential consideration and increased the probability that the farmer would remove the tree.

The Impact of Export Policies on the Development of the Forest Products Sector in the Russian Far East

John Simeone, School of Environmental and Forest Sciences, University of Washington

Abstract

With the European Union's approval of the Forest Law Enforcement, Governance and Trade Action Plan in 2003 and the United States' amendment to the Lacey Act in 2008, the global supply of forest products is under increasing scrutiny. The Russian Federation contains the largest area of natural forests in the world, exceeding the combined forest area of Brazil and Canada –approximately 23% of global forests. Yet, a large percentage of illegal logging occurs in Russia. Two of Russia's regions, Siberia and the Russian Far East, are particularly problematic. Significant obstacles to development of a successful forestry sector, including aging infrastructure, poor transportation, and widespread corruption, have been well documented. The wood processing capacity in Russia lags far behind the available resource and in only two regions, the Northwest and Siberia, does the processing capacity exceed 25 percent. With the lack of processing capabilities it is no wonder that Russia has become the world's largest net exporter of roundwood. The demand for unprocessed timber has grown since 1992 with China, Finland and Japan being the most significant importers of Russian logs.

Recently, Russia has adopted two policies that aim to support the development of a domestic timber processing industry: an export tax on roundwood and a subsidy on investments in processing infrastructure in the forestry sector. My research seeks to understand if these policy instruments could create an incentive structure to encourage the development of institutions, property rights, and better forest management practices in the Russian Far East (RFE). The research questions for this paper include: 1) What are the effects of various export tax rates and subsidies in the forestry sector in the RFE? 2) Is there an optimal export tax rate for roundwood in the RFE? and 3) Are there potential of outcomes to (1) and (2) that provide incentives for better forest management? I propose answering question (1) by conducting a sectoral analysis using input-output models. In answering question (2), I will rely on trade data from UN Comtrade and FAOSTAT to derive whether Russia has monopoly power on timber exports in the Asian market. In order to answer question (3), I will rely heavily on methodology used in the field of political economy to analyze forest management in the RFE.

National to Local: A Pre & Post Assessment of FCCS Landscape Variables for the Confederated Salish and Kootenai Tribes of Montana, USA.

Laurel James, School of Environmental and Forest Sciences, University of Washington

Abstract

A modified Fuel Characteristic and Classification System (FCCS) fuelbed was created for the Confederated Salish & Kootenai Tribes (CSKT) of Montana. This crosswalk of data combined Bureau of Indian Affairs (BIA), locally available Continuous Forest Inventory Data (CFI) in combination with the national LANDFIRE data sets; available from the US-Forest Service. Initially, LANDFIRE and FCCS were chosen as the geospatial project-base utilized for an associated assessment that was completed as part of the UW-IGERT (Cohort 2), "Bioresource based Energy for Sustainable Societies" program thus, served a dual purpose. LANDFIRE was a tool that the CSKT was familiar within their Forestry and Fire management programs and; is a dataset that provides a nationally consistent high resolution (30m) coverage that is compatible with other USFS fire and management tools. Therefore, modifying the FCCS database to incorporate their locally available data; affords an opportunity for future adjustments that will produce fine scale analysis of data for their reservation.

During the modification process; careful attention was made to incorporate existing landscape management plans and management schemes that have resulted in a hierarchical framework in creating their new fuelbed characteristics:

Seral Cluster → Fire Regime → Landscape = Modified Fuelbed

This assessment is a first of its kind, in terms of the crosswalk of data for a tribal nation that address' information between the Forest Service (USDA) and the BIA (USDOI) programs. This project was completed in consultation with CSKT tribal forestry staff and has received full CSKT Tribal Council approvals.

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Incorporating Holistic Methodologies in Assessing Wind Resource Availability for the Confederated Salish & Kootenai Tribes of Montana

Laurel James, School of Environmental and Forest Sciences, University of Washington

Abstract

The University of Bioresource-based Energy for Sustainable Societies, Integrative Graduate Education and Research Training (IGERT- Cohort 2); worked to develop an array of renewable energy assessments for the Confederated Salish and Kootenai Tribes of Montana, during the 2009-2010 academic year; which, included "Wind Feasibility Study for the CSKT"(2010). The Interdisciplinary team of PhD track students worked in consultation with the Tribal Council, tribal staff and the cultural elders' panel to define the portions of the landscape available for wind resource development. Specific breakdowns included: 1) Technologically available acreage, 2) Economically available acreage, 3) Environmentally available acreage; while also addressing the aesthetic, economic and siting constraints.

Tribes across the United States are in unique positions with vast amounts of renewable energy resources and wind energy could possibly assist in the transformation of our countries reliance upon fossil fuels. Biomass, hydrogen, geothermal, wind, solar and especially energy conservation all play a role in creating energy responsibility and efficiency in our world energy needs. The UW IGERT aimed to explore responsible choices that tribes may consider developing on their own or with renewable energy partners? The government to government relationship allows tribes a comparative advantage to resources and relationships where other entities may have limitations. The government is creating many incentives for private wind development and hopefully tribes that are interested can create opportunities on their reservations. This project was completed in consultation with CSKT tribal staff, elders' panel and has received full CSKT Tribal Council approvals.

Combining Sociological and Ecological Research Approaches to Investigate the Role of the Water Monitor Lizard (Varanus salvator) in Indonesia

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Abstract

Wildlife conservation biologists increasingly recognize the effectiveness of utilizing interdisciplinary research approaches to investigate wildlife systems, to ensure sustainability, and to mitigate human-animal conflict. Documentation of community knowledge and attitudes can be coupled with greater understanding of animal behavior to inform such conservation objectives. Our research is designed to address both sociological and ecological perspectives in a study of the water monitor lizard, Varanus salvator, in Indonesia. V. salvator's story is two-fold; in Palembang, South Sumatra Province, V. salvator is a natural resource harvested for its meat and skin. With over 400,000 wild harvested V. salvator skins exported from Indonesia annually there is concern about ensuring the sustainability of such a high volume of harvest. Conversely, in other parts of the country where V. salvator is not harvested, decreasing wildlife habitat coupled with V. salvator's potential for hunting domestic chickens and scavenging human food leftovers creates greater opportunity for human-animal conflict to develop.

By conducting interviews in South Sumatra and Banten Provinces we aim to determine: 1) What is the socioeconomic value of V. salvator in an area where it is being commercially harvested? 2) What are community attitudes toward V. salvator in an area where it is commercially harvested vs. areas where it is not? In Banten Province the following research questions will also be investigated: 1) Do V. salvator home ranges and resource use differ with varying levels of human contact? 2) Are V. salvator more abundant in areas where incidental human food supplementation is occurring as opposed to areas uninhabited by humans?

Our research takes advantage of spatial differences in human use to conduct a "natural experiment" in which individual V. salvator are trapped in areas with varying degrees of human presence and fitted with radiotelemetric harnesses. Through the use of radiotelemetry we will monitor home range and resource use, and compare V. salvator behavior across locations. By documenting community attitudes and by studying anthropogenic influences on V. salvator behavior, our research will increase understanding of the V. salvator system from both ecological and sociological perspectives. This knowledge can be used to aid in predicting the implications of anthropogenic pressure on V. salvator populations, particularly in areas where there is a potential for human-animal conflict, or where V. salvator population declines could result in negative impacts to local livelihoods.

Integrating Vegetation Indices, Spatial Structure and Biophysical Data to Measure Land Cover Change

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Abstract

Measurements of net primary production and other vegetation indices using remote sensing permit comparisons across different spatial and temporal scales. Land cover change assessments are possible using remote sensing. Given the time and expense of detailed field data, vegetation measurements are not available for many ecosystems. The multi-temporal and multi-spatial coverage

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provided by satellite data facilitates the use of remote sensing images to monitor changes in land cover and land use over time. Remote sensing satellite images provide information about the earth's surface features in different spectral regions and at different spatial resolutions that is useful in characterizing vegetation, soil, water, and landforms at different scales. This research examines the ability to effectively measure land cover change using remote sensing in a Pacific Northwest site with detailed field data and a degraded rural landscape in Guatemala with sparse to no field data. Remotely sensed vegetation indices and net primary productivity will be used in a conjunction with the spatial structure and biophysical characteristics of the land scape to measure land cover changes over time.

Decision trees, including regression trees, will be used to classify remotely sensed data because of their flexibility, nonparametric nature, and ability to integrate both numerical and categorical data. Land cover change over time can be calculated using remote sensed data by analyzing changes in the landscape spatial structure and the changes in spectral indicators. Different techniques for change analysis will be explored. Image differencing, principal component analysis and post-classification comparison are the most common methods used for change detection. A change vector analysis is one method that has been used to effectively analyze the intensity and dimension of land cover changes for the areas of analysis and will also be calculated to determine its viability in comparison to other methods.

The resulting methodology will be used to measure land cover change for a Pacific Northwest forest landscape and proposes a methodology for such an application. The resulting methodology will be tested and revised if necessary to estimate multi-temporal land cover changes for the site in Guatemala.

Convention on Biological Diversity: Understanding Domestic Implementation

Sebastian Tramon & Nives Dolšak, School of Environmental and Forest Sciences, University of Washington

Abstract

In 2002, the Convention on Biological Diversity (CBD) established goals for 2010, which was an attempt to have performance criteria provided by the Convention. Each country would adopt these goals for their National Biodiversity Strategy and Action Plan. At the global level, it is certain that these goals were not met, but at the country level, the situation is not as clear.

Economic activities regarding natural resources, such as agriculture and forestry, cause habitat loss and ecosystems fragmentation which are the primary cause of biodiversity loss. How do these activities influence implementation of the CBD and the achievement of the 2010 goals? This paper tests the domestic adjustment model as a way to explain variation in biodiversity conservation performance across countries. According to this rational model, if there are costs imposed on domestic stakeholders, then the implementation of CBD is reduced. The CBD requires a reduction of negative impacts on biodiversity and ecosystem services, reduction that affects directly activities related to natural resources.

A cross-sectional analysis was conducted on 180 CBD signatory countries for which information was available. The model measured four variables regarding a country's biodiversity conservation performance. These variables were: progress toward 10% conservation of each terrestrial biome, rate of deforestation, regulation of genetic resources, and the percentage of protected marine areas. The key independent variable was percentage of GDP from natural resources. Considering that measuring biodiversity is quite complex, it is necessary to control for other domestic factors that might influence the implementation of CBD. The model controls for GDP per capita, population, and governance factors (political stability, regulatory quality, corruption control, effectiveness of institutions, and rule of law). The dependent variables in the model will utilize ordinary least squares (OLS) and binary logistic regression based on the type of data measurement. Integrating biodiversity conservation in productive sectors is a goal of the CBD. Through a global analysis of trends related to conservation, the implementation of this international regime will be explored. This integration will provide additional evidence to the viability of the domestic adjustment model.

Forest Certification in Asia: The Changing Marketplace for Value Added Wood Product Manufacturers in China and Vietnam

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Abstract

China and Vietnam have emerged as two key wood products manufacturers in Asia that export large volume of wooden furniture globally. As regulations and environmental awareness from countries that import these products increase, manufacturers have had to establish certification practices for continued accessibility to these markets. A study based on managerial interviews and a survey with 156 wood product manufacturing operations in China and Vietnam, asked questions on how forest certification had been implemented into their business practices and what challenge had come from the adoption of these standards. These responses were analyzed to determine the contributing factors to the commitment to certification.

Comparisons between China and Vietnam were used to identify country specific factors that may influence a company's decision to obtain forest certification for their operations. Survey respondents indicated that acquiring certified raw material supply, market awareness, and certification costs were found to be

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the major constraints encountered in adding certified products to their sales mix. Lack of a domestic supply of certified wood was also a problem that led to a heavy reliance on imported wood at additional costs to the bottom line. Results revealed significant differences among the two countries regarding their perceptions of the benefits of certification, but showed that market benefits were the leading driver to a company's commitment to certification.

"Forest and Forest Revitalization Plan": new initiative for revitalizing forest and forestry by the Japanese government

Yoshihiko Aga, School of Environmental and Forest Sciences, University of Washington

Abstract

In Japan, large part of 10 million hectares of planted forests, mainly planted in 1950-60's, has been reaching their maturing ages. Given such resource condition, the Japanese forestry sector is now strongly expected to supply logs from planted forests to wood mills sustainably, while creating jobs in rural mountain communities and contributing to the mitigation of global warming through proper forest management. Contrary to these expectations, however, Japan's forestry has been facing some difficulties including decreasing wood price, low profitability of log production, and declining forestry workforce, which led to long-lasting stagnation of forestry and low level of forest management.

In December 2009, the Ministry of Agriculture, Forestry and Fisheries of Japan (MAFF) developed the "Forest and Forestry Revitalization Plan" as a comprehensive initiative for revitalizing forest and forestry sector. Under three fundamental principles: a) to provide and sustain multifunctional roles of forest, b) to revitalize forestry and wood products industry efficiently utilizing regional natural resources, and c) to contribute to the realization of the "low-carbon society" through expanding wood use, the Plan intends to convert Japan's society into "wood society" which will efficiently utilize forest resource to contribute to employment and environment. The Plan intends to develop the foundation for the efficient and stable forest management, through i) construction of forest road networks, ii) coordination and consolidation of forestry practices, and iii) development of skilled forestry workforce, aiming to realize the target of wood self-sufficiency rate as "more than 50%" through developing reliable domestic wood supply/use system.

The MAFF began to study possible measures for the realization of the Plan with intellectuals from industry and academia from January 2010. The final report on those measures, publicized in November 2010, proposed to review the Japan's forest and forestry policies, institutions and organizations as a whole, for the development of the new forest and forestry policies in Japan. In response to the final report, from 2011, the MAFF have begun to implement the revision of forest planning system, the introduction of the "forest management and environmental conservation direct support system", acceleration of the development of durable and simple forest road network, and development of forestry technical experts including "Foresters" who plan and advise local forestry activities. Progress of these measures is supposed to be reviewed with the intellectuals on a timely basis to ensure the effectiveness.

Bring Resident Perspectives in Watershed Management: Case Study of Maplewood Neighborhood in Lower Cedar River Basin, Washington

Yu-Chi Huang, School of Environmental and Forest Sciences, University of Washington

Abstract

Lower Cedar River Basin is an urban watershed that shares the problem of urbanization, flooding, and declining salmon population with many other riparian ecosystems in the Pacific Northwest urban regions. To restore the watershed, King County and non-government organizations such as Cascade Land Conservancy have been dedicated in invasive removal and native plants planting. A critical factor in restoration of urban streams is the human population. Volunteer tree-planting on private property not only nurtures local biodiversity, but also mitigates flood damage through bank stabilization of plant root system. Engaging the residents along the urban stream to achieve a shared understanding of what is achievable and desirable to communities for their local stream is especially crucial under a limitation of time and budget of management plans.

It is therefore important to know if the residents' preferences of riparian landscape and perspectives toward watershed management are consistent with riparian ecologists and policy makers. This study is aimed to understand the residents in Maplewood Neighborhood in terms of their riparian landscape preference, attitudes toward environmental hazards and watershed management plans and regulations, environmental behavior, and demographic characteristics. To begin with, the relative contributions of landscape attributes to viewer preferences are examined across a range of riparian scenes. Specifically, the relationships between landscape preference and: attitudes toward hazards, plans, regulations, environmental behaviors, and demographics are assessed.

Thirty two photos of riparian scenes were taken on the Cedar River. 5 interviews were done as preliminary study to facilitate the formation of survey. Survey questionnaires were hand-delivered to all the other Maplewood residents, including a a series of 5-point Likert-type scale items, measuring preference for a range of riparian landscape, and attitudes, along with close-ended questions of behavior and demographics. Factor Analysis with SPSS is used to draw out the factors which contribute to various levels of preference. The factors of preference then serve as the dependent variable, with attitudes, behaviors, and demographics as independent variables. Multivariate application of the general linear model (GLM) in SPSS will be used to explore the effects of the independent variables on the preference variables. A major shared preference of riparian landscape among the residents in Maplewood: it contains elements of aesthetics, moderate nature with proper management, and no log jams and debris that are signs of floods. Further analysis will be done in winter, 2011, to discuss the implication for watershed management.

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