

**2014 Conservation and Community Grants  
Full Grant Proposals**

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## Grant Application Template

### Application Requirements:

- Proposals must follow this application format.
- Applications cannot be longer than 8 pages (Note that the required agreements to Public Communications, and the Lead Organization's current proof of non-profit status do not count towards the 8 page maximum).
- **You may delete all text that precedes this section and any text in italics throughout the application.**

### All applications must include the following items:

#### Organization Information

The Lead Organization in the Project must be a non-profit organization (e.g. A registered, tax-exempt 501(c)(3) in the US or registered with the Charities Directorate of the Canada Revenue Agency in Canada). Colleges, universities and schools qualify as non-profit organizations. Applicants must submit current proof of tax-exempt status with this application.

Lead Organization Name and Address	American Bird Conservancy
Name, phone and email for Project Director	Michael J. Parr, 202 684 5805, <a href="mailto:mparr@abcbirds.org">mparr@abcbirds.org</a>
Lead Organizational Mission Statement (25 words or less)	American Bird Conservancy (ABC) is a 501(c)(3), not-for profit organization whose mission is to conserve native birds and their habitats throughout the Americas.
Lead Organization Annual Operating Budget	\$11.2M
Two references (Name, Organization, email and phone) who can speak to the relevance and potential impact of the Project (these should not be the same as your Project partners):	Larry Selzer, The Conservation Fund , <a href="mailto:selzer@conservationfund.org">selzer@conservationfund.org</a> , 703-525-6300; Claude Gascon, National Fish and Wildlife Foundation, <a href="mailto:Claude.Gascon@NFWF.ORG">Claude.Gascon@NFWF.ORG</a> , 202 857 0166

#### Project Overview

The Project must relate to or support one or more elements of the SFI 2010-2014 Program. You can download a copy of the Standard and supporting documents from the SFI website here: <http://www.sfi-program.org/sfi-standard/sfi-standards/>

Project Title	Total Length of time for completion of project (in months, from commencement to final reporting)	Amount Requested from SFI	Total Project Budget (including matching funds and in-kind contributions)*	Brief Project Summary (50 words or less)	What element(s) of the SFI 2010-2014 Program are addressed by your Project? (Please cite the Standard Component(s))
Bringing	8	\$86,000	\$120,000	The project will	Objective 4 –

Back the Forest Birds				identify priority habitats for bird conservation, develop a range of improved management scenarios for these, and establish the practicality and relative cost of the various scenarios for potential use by SFI members.	Conservation of Biological Diversity including Forests with Exceptional Conservation Value
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*\* Matching funds and in-kind contributions should be reflected again in the budget outline below, indicating the source for each amount and Project Partner*

Project Partners

*\*For each Project Partner, please complete the following table. This application must include a signed copy of the Agreement to Public Communications for each listed partner, as well as the Lead Organization. A copy of this agreement may be found at the end of this document.*

Confirmed Project Partners (list organization name only)	Primary Contact Name & Title	Complete Contact Information (Email, Phone Number, Mailing Address)	Brief Summary of Individual's and Organizations Qualifications and Experience (150 words or less per partner)
American Bird Conservancy	Michael J. Parr, Vice President for Program Development	<a href="mailto:mparr@abcbirds.org">mparr@abcbirds.org</a> 202 684 5805 1731 Connecticut Avenue, NW, 3 <sup>rd</sup> Floor, Washington DC 20009	Michael Parr graduated from the University of East Anglia, U.K., in 1986. He then worked at BirdLife International before joining American Bird Conservancy in 1996. He is a co-author of three major ornithological books, along with numerous articles and papers on birds and conservation.  ABC is the only U.S.-based group with a major focus on bird habitat conservation throughout the entire Americas. ABC acts across the full spectrum of threats to birds to safeguard the rarest bird species, restore habitats, and reduce threats, unifying and strengthening

NatureServe	Regan Smyth, Landscape Ecologist	<a href="mailto:Regan_Smyth@Natureserve.org">Regan_Smyth@Natureserve.org</a> 703-908-1887 4600 N. Fairfax Dr., 7th Floor Arlington, VA 22203	<p>the bird conservation movement.</p> <p>ABC leads bird conservation by analyzing issues using the best available science; facilitating networks and partnerships; sharing information; developing and implementing collaborative strategies; and establishing measurable outputs.</p> <p>Regan Smyth is a landscape ecologist at NatureServe, with extensive experience with vegetation mapping, habitat modeling, and spatial conservation prioritizations. She holds a B.S. and M.E.M. in Ecosystem Science and Management from Duke University (2006) and has been at NatureServe since 2007.</p> <p>NatureServe represents an international network of biological inventories-known as natural heritage programs or conservation data centers-operating in all 50 U.S. states, Canada, Latin America and the Caribbean. Together we not only collect and manage detailed local information on plants, animals, and ecosystems, but develop information products, data management tools, and conservation services to help meet local, national, and global conservation needs. The objective scientific information about species and ecosystems developed by NatureServe is used by all sectors of society-conservation groups, government agencies, corporations, academia, and the public-to make informed decisions about managing our natural resources.</p>
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Resource Management Services	Jimmy Bullock, Senior Vice President, Forest Sustainability	<a href="mailto:jbullock@resourcemgt.com">jbullock@resourcemgt.com</a> 601 529 1144, 31 Inverness Center Parkway Suite 360 Birmingham, AL 35242	<p>Founded in 1950, RMS is a private timberland investment firm serving pension funds, endowments, foundations and family offices. For over 60 years we have been creating value for timberland owners and investors through the disciplined integration of forestry and finance. Our clients benefit from an accumulation of knowledge and experience that span decades, numerous business cycles and dramatic changes in forest management and investments. Throughout this history our commitment to innovation and professional excellence has remained constant. Our company is employee owned and managed, with ownership broadly distributed throughout the firm. This means we share more than a professional interest in the performance of your forestland investment. Our success is tied to the success of our clients, ensuring alignment of interest and accountability at every stage of the investment process.</p> <p>RMS is a registered investment advisor based in Birmingham, Alabama with offices across the US South, Brazil, New Zealand and China.</p>
Plum Creek Timber Company	Rob Olszewski, Vice President, Environmental Affairs	<a href="mailto:Rob.Olszewski@plumcreek.com">Rob.Olszewski@plumcreek.com</a> Plum Creek Timber Company, 601 Union Street, Suite 3100, Seattle, WA 98101 Phone: 206-467-3600	<p>Plum Creek is one of the largest landowners in the nation and the most geographically diverse, with approximately 6.3 million acres in major timber producing regions of the United States. We continually assess the value of the trees growing on our lands, the value of the natural resources (rocks, sand, minerals, oil and gas) that reside beneath the surface, and the value</p>

			<p>of the land itself. Our job, as stewards of these assets, is to maximize the value of each of them.</p> <p>The company produces lumber, plywood and medium density fiberboard (MDF) in our wood products manufacturing facilities in the Northwest. Plum Creek also operates a real estate development business which is a taxable REIT subsidiary. Plum Creek employs more than 1,200 people across 19 states.</p> <p>The company is committed to being the premier timberland company by demonstrating leadership and innovation in:</p> <ul style="list-style-type: none"> <li>§ Identifying opportunities for value growth from our assets.</li> <li>§ Practicing environmentally responsible resource stewardship.</li> <li>§ Achieving superior returns for our owners.</li> <li>§ Engaging with our communities on matters of common interest.</li> <li>§ Consistently providing quality products and services to our customers.</li> <li>§ Selecting business partners that share common values and beliefs.</li> <li>§ Fostering an ethical business culture that encourages ideas and initiative and rewards accomplishments.</li> </ul> <p>Plum Creek is also committed to high standards of corporate governance. This commitment is</p>
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			<p>expressed in a variety of our charters and serves as the foundation of our corporate governance practices.</p> <p>Plum Creek is a strong community partner throughout our ownership supporting conservation, the environment, wildlife, community organizations and sustainable forestry.</p>
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Project Details

*Please provide answers to the following questions to describe your project.*

1. *Please provide an introductory narrative describing (a) the basic methodology, and (b) the intended impact of your project.*

**Basic Methodology**

The project will first develop a taxonomy of bird habitats by grouping bird species that occur together within standard vegetation classes produced by the National Vegetation Classification System. The boundaries of these vegetation classes will be amended in a Geographic Information System (GIS) to match clusters of birds with similar habitat needs, and a list (in essence, a national taxonomy) of bird habitats will be developed. The GIS polygons for each of these will then be prioritized for conservation according to their extent, current and predicted condition according to relevant land use data sets (including forest condition, climate risk etc.), and presence of high conservation-priority birds. The analysis can be augmented with additional data sets such as ecological and vegetative data from SFI landowner program participants

We will then further analyze those high priority habitats comprised primarily of forest, where SFI has substantial acreage, and develop a series of potential management recommendations from “slightly improved”, to “significantly improved”, and “ideal” for priority birds. These potential recommendations will then be reviewed by land management specialists from SFI’s membership to determine the relative costs of each approach to determine which are both the least expensive (and most practical) and most effective to deploy. The recommendations will draw from existing bird research and conservation initiatives of the SFI Forest Program Participants and those of ABC. The program will also explore the possibility of developing survey and inventory methodologies that could be applied across ownerships to provide baselines to help evaluate bird distributions and population dynamics.

The project will result in a set of potential recommendations for SFI members to improve bird conservation values in the highest priority habitats at a range of investment levels. It will also enable ABC and SFI to seek funding from additional partners, and maximize the impact of investments by these partners in forest management for birds undertaken by willing SFI members.

2. *Please explain how your project will illustrate or inform the role of SFI in one or more of the five conservation categories listed on the first page (Note that SFI may consider compelling projects that may fall outside these categories)*

The project will assist SFI under the heading of Wildlife, Fish and Biodiversity by showing which existing regions of SFI certified lands are already most critical in supporting priority bird species and groups. It will also provide data and tools to help further enhance the conservation value of these areas; and provide guidance to potential federal, state, and private conservation investors on how to maximize their support for bird conservation in partnership with SFI.

3. *What activities will you and your Project partners perform to promote the outcomes of your Project and SFI Involvement in the Project?*

The project will result in a report with recommendations which will be published in partnership with SFI. It will be made available to SFI members, agencies, and conservation donors to help guide investment strategies for bird conservation in private forest lands across the U.S. and Canada. Further, the project will assist ABC in working to implement business plans for priority bird conservati regions developed under the auspices of Partners in Flight which will increase support from, and connection to, the broader bird conservation community for these efforts.

4. *In the table below, please list the goals for your project. For each goal, please describe: the actions you will take to achieve your goal; the corresponding tangible outcomes (e.g. provide implementation guidance on a component of the SFI Standard, landowners reached through education programs, acres positively affected by the Project); the means by which you will measure success in achieving each goal, and; the portion of the requested grant funds that would be used to achieve the goal. Add rows as needed to address all project goals.*

Project Goals	Actions	Tangible Outcomes	Measure Success	Grant Funds	In-Kind or Matching Funds
Create taxonomy of bird habitats with GIS and risk assessment	Desk study	List of priority habitats, GIS layer, risk assessment, database of bird-habitat associations	Outputs available to study	\$36,000 (including \$6,000 for climate change risk layer)	\$14,000
Development of management recommendations	Consultations with practitioners and desk study	Sets of scaled management recommendations for up to five priority forest regions ranked according to bird conservation impact	Outputs available to study	\$12,500	
Developing	Consultations with	Ranking of	Outputs available to	\$12,500	

investment recommendations based on efficacy, cost, and practicality of management techniques	SFI members and desk study	management recommendations according to practicality and cost	study		
Produce report on findings	Desk study	Document summarizing findings and recommendations	Report published (likely as a PDF)	\$10,000	
Project management and communications	Support and supervision, outreach on outputs	Project completed on time and at high quality, outputs effectively communicated and disseminated	Project completed on budget, on time, to quality, and effectively communicated	\$15,000	\$20,000

**Project Timeline**

*Please provide a timeline for completion of the project. Projects may range to a maximum of three years. Projects will commence at the time the Grant Agreement is signed, soon after notification of acceptance of your proposal. The timeline should indicate when you will deliver upon the goals and outcomes – project payments will be tied to attainment of project milestones and will be generally be made on a six-month payment schedule. SFI will receive and process invoices during a brief window each quarter (e.g. in March, June, September and December). The specific timeline for each project will dictate the schedule of reports and payments.*

The project will commence in May of 2014 and conclude by December 31, 2014.

**Project Budget**

*Please fill out the table below to illustrate the entire Project budget. SFI Inc. will not award any funds for organization overhead costs, which include but are not limited to, office rent or maintenance, utilities, temporary hires, etc. While some portion of the grant may be used to offset staff salary and benefits, the focus should be on-the-ground activities.*

*You may modify this table to fit your needs, however please ensure your budget addresses the following components:*

- 1. Portion of the budget to be allocated to each staff person working on the Project*
- 2. Total Operating costs by line item, e.g. travel, meetings, communications, education & outreach (please add categories as needed)*
- 3. Identify any in-kind support allocated to this Project by each project partner*
- 4. Identify any matching funds allocated to this Project by each project partner*

<b>Expenditure</b>	<b>SFI Grant Funds</b>	<b>Total Matching Funds</b>	<b>Source of Matching Funds*</b>	<b>In-Kind Contributions*</b>	<b>Source of In-kind Contributions</b>	<b>Total per expenditure category</b>
<b>Staff Salary and</b>	Michael	\$10,000				

<b>Benefits</b> (please list budget amount individually per staff person)	Parr \$15,000  Contractors \$60,000  George Fenwick	\$5,000	ABC			
<b>Operating Costs</b>						
Research Activities	NatureServe data analysis \$6,000	\$9,000	ABC			
Meetings						
Travel	\$5,000					
Education & Outreach						
Communications		\$10,000	ABC			
<b>Total</b>	<b>\$86,000</b>	<b>\$34,000</b>				

\*list sources and amounts of any matching funds or in-kind contributions for each project partner

**Grant Application Sustainable Forestry as Generational Land Retention Strategy for Black Landowners**

Lead Organization Name and Address	U. S. Endowment for Forestry and Communities 908 E. North Street Greenville, SC 29601
Name, phone and email for Project Director	Alan McGregor, VP 828-318-8554 alan@usendowment.org
Lead Organizational Mission Statement (25 words or less)	<i>The Endowment works collaboratively with partners in the public and private sectors to advance systemic, transformative and sustainable change for the health and vitality of the nation's working forests and forest-reliant communities.</i>
Lead Organization Annual Operating Budget	\$8 to \$10 million (operating and grants)
Two references (Name, Organization, email and phone) who can speak to the relevance and potential impact of the Project (these should not be the same as your Project partners):	Leonard Jordan, NRCS, Associate Chief, (202) 690-2198, <a href="mailto:leonard.jordan@wdc.usda.gov">leonard.jordan@wdc.usda.gov</a> John Dondero, Director of Cooperative Forestry, Region 8, USDA Forest Service, <a href="mailto:jdondero@fs.fed.us">jdondero@fs.fed.us</a> , (404) 347-7200

**Project Overview**

Project Title	Total Length of time for completion of project (in months)	Amount Requested from SFI	Total Project Budget (matching funds and in-kind)*	Brief Project Summary (50 words or less)	What element(s) of the SFI 2010-2014 Program are addressed by your Project?
Sustainable Forestry as Generational Land Retention Strategy for Black Landowners	18 months	\$72,000	\$180,000 project budget of a total \$2 million program.	Develop forest certification and connection to forestry support resources as a multi-generational profitability strategy for more than 100 Black family forest owners in NC, SC, and AL.	Directly Supports: Objective 17. Community Involvement in the Practice of <i>Sustainable Forestry</i> . Also impacts forest health. <b>Objective 9.</b> Use of <i>Qualified Resource</i> and <i>Qualified Logging Professionals</i> .

\* Matching funds and in-kind contributions should be reflected again in the budget outline below, indicating the source for each amount and Project Partner

Confirmed Partners	Primary Contact	Complete Contact Information	Qualifications and Experience
Center for Heirs Property Preservation	Jennie Stephens, Executive Director	<a href="mailto:jstephens@heirsproperty.org">jstephens@heirsproperty.org</a> (843) 745-7055 1535 Sam Rittenburg Blvd., Suite D Charleston, SC 29407-4124	Experienced organization working to clear heirs' property, primarily for Black families. Now incorporating forestry as a land retention strategy. Serves Coastal SC

Limited Resource Landowner Education and Assistance Network	Jerry Lacey Project Lead	<a href="mailto:lrian.5@gmail.com">lrian.5@gmail.com</a> (205) 932-4442 3726 County Road 12 Fayette, AL 35555	Nonprofit network of Black forest owners with history and strong track record of connecting landowners to NRCS and AL Forestry Commission programs
Roanoke Center of Roanoke Electrical Coop	Curtis Wynn President	<a href="mailto:cwynn@roanokeelectric.com">cwynn@roanokeelectric.com</a> (252) 209-2224 P. O. Drawer 1326 Ahoskie, NC 27910	Well established Regional Electrical Coop with nonprofit community economic development arm. 17,000 members.
Federation of Southern Cooperatives/Land Assistance Fund	Monica Rainge, Project Director/Attorney	<a href="mailto:monicarainge@federation.coop">monicarainge@federation.coop</a> (850) 702-7560 2769 Church Street East Point, GA 30344	Mature regional organization focused on Black agriculture, forestry, cooperative development, and land retention.

**Project Background: Sustainable Forestry , Black Land Loss, and Wealth Disparity**

In this proposal, SFI is invited to join an important initiative to increase forest productivity, profitability and health on Black-owned land in the Southeast by specifically funding work on forest certification, next generation Black engagement in forestry, and analysis of efforts to build trusted networks of support for Black forestland owners, who have not typically been aware of or implemented sustainable forestry practices.

Diminished forest value results from a broken value chain that now fails to efficiently connect southern socially disadvantaged and limited resource landowners to forestry support programs and markets. Consequently, forestland is threatened by alternative land uses and southern Black owners are unnecessarily losing ownership of historic rural family land. Restoration of the forest value chain will increase sustainable forest management and thereby increase income, asset value, and long-term land retention. Land returned to healthy forests will also have beneficial conservation and environmental benefits.

The premise of this proposal is that sophisticated outreach and landowner support strategies can increase income and asset value from Black-owned forestland, thus preserving the family and community asset of land ownership. The opportunity for doing so is in large part created by current aggressive USDA policy and outreach practices to reverse impacts of past racial discrimination in farm programs and new forest technologies and markets, including forest certification, that open access to forestry markets for smaller landowners.

The project proposed here to SFI will be part of a larger initiative sponsored and funded by the U. S. Endowment for Forestry and Communities, NRCS, the USDA Forest Service and a number of local and regional funders. Initially, the program has funded two-year pilot projects in Northeast NC, Coastal SC, and West Alabama with the prospect of a longer program period if early success is measured/confirmed.

The overall project will restore, enhance, and conserve threatened, privately-owned Black forestland in the southern U. S. through:

1. introducing new forestry technologies, including forest certification;
2. creating trusted, comprehensive, and transferable systems of landowner outreach and support;
3. assisting heirs' property landowners to clear title and do proper estate and succession planning;
4. facilitating access to Farm Bill programs such as those administered by NRCS and state programs administered by forestry commissions; and

5. developing access to traditional and emerging forestry professionals and to forest products markets.

**Repairing the Value Chain:** The failure to maximize forest value for Black landowners is not driven by lack of motivation or interest. Instead, there have been breakdowns in critical points in the value chain running from Black-owned land to the forest products industry that have made profitable forestry particularly difficult for minority landowners. The project will address these critical problems.

Contributors to Broken Value Chain	Fixes Provided by Project
<i>Land tenure problems:</i> Lack of clear title makes it difficult to access EQIP and other support programs and to the capital needed to improve and sustain healthy forests.	Provision of legal services and estate planning to participating forest owners to secure title and ensure clear ownership going forward.
<i>Discrimination and exploitation by both government programs and forestry professionals:</i> Lack of advice and financial assistance, bad advice, and outright exploitation have discouraged Black land owners and, in some cases, made them wary of service providers.	Relationships with agencies, professional forestry services, and forestry associations brokered through trusted community-based networks with goal to build healthy direct relationships over time. This will complement and enhance USDA, state and private industry outreach programs.
<i>Reduced timber value for small landowners:</i> The value of forest resources of many socially disadvantaged landowners is diminished by a complex market system that does not serve small landowners well.	Directly connect land owners to emerging wood markets that sometimes offer higher value: certified sustainable wood directly brokered to forest industries; biomass markets for low-value wood; and Non-Timber Forest Products.
<i>Scale of forestry and forest products industries:</i> The consolidation of forest industries and the consequent required scale of production have disadvantaged smaller landowners and made access to private forestry services for small landholdings scarce.	Develop profitable business models for foresters and loggers that include serving smaller land owners. Aggregate smaller land owners into collective forest management and marketing.

### Support Networks and Lead Organizations

The partnership will test the concept that coordinated, focused, and trusted systems of landowner support can increase profitability and asset value of Black-owned forests. The networks are lead by trusted community organizations that will coordinate relationships and services from their organizational partners.

**Coastal South Carolina**—The **Center for Heirs’ Property Preservation**, SC NRCS, the SC Forestry Commission, Black Family Land Trust, Clemson University, MWV (MeadWestvaco), Kapstone, SC Community Loan Fund, The Conservation Fund, SC Wildlife Federation, and SC SFI SIC.

**Northeastern North Carolina**—**Roanoke Center/Roanoke Electrical Coop**, NC NRCS, The Conservation Fund, Land Loss Prevention Project, NC Department of Agriculture, NCSU Forestry Extension, and NC SFI SIC.

**West Alabama**— **LRLEAN, Federation of Southern Cooperatives/Land Assistance Fund**, AL NRCS, Tuskegee University, U.S.D.A. Forest Service, Alabama Forestry Commission, Alabama A&M, Alabama Cooperative Extension Service, The United Christian Community Association, National Wildlife Federation, National Network of Forest Practitioners, and AL SFI SIC.

### 1. Impact of SFI Funding

Funding from SFI would allow the project to expand its focus in three critical areas:

1. Forest Certification: Certification will create market opportunity and increased profitability for smaller landowners and increased forest health;

2. Next generation and youth engagement: The advanced age of forest owners creates a need to support transition to next generation owners and the need for younger people of color to enter the field of natural resource management;
3. Deep understanding of Black landowner relationships to government and private forestry service providers: A sophisticated “network analysis” will be done with SFI funding to measure change in attitudes, relationship, and consequent increase in productive engagement between Black landowners and critical government and private forestry professionals and industries.

### **Project 1: Forest Certification**

The Sustainable Forestry and African American Land Retention Program (SFALRP) efforts among limited resources minority landowners in West Alabama, Coastal South Carolina, and Northeastern North Carolina will inform 300, encourage 125, and work closely with at least 50 forest landowners to obtain SFI or American Tree Farm certification for their properties. This effort will enable a core group of minority forest owners to be early adopters of SFI certification and be exemplars for others in their communities. SFI signage, visits and interactions with certified properties and owners will encourage and embolden other minority landowners to consider, if not certify their properties. The coincidence of a complementary SFALRP effort (to develop forest product markets for small forest holdings) with the forestry industry’s interest (in sourcing fiber from certified sources) presents a win-win opportunity for both forest producers and raw wood consumers. The clustering of small certified properties, potential premiums offered for certified raw material, and more efficient procurement (harvesting and transportation) could lead to income generation (not currently viable), increased availability of certified raw material, and wealth building along the forest value chain.

**Geographic focus:** All three SFALRP regions will participate in the certification effort. It will be a primary focus of the effort in West Alabama where the participating landowners are, as a group, further in their forest planning because of past work of LRLEAN, the Federation of Southern Cooperatives/Land Assistance Fund, NRCS, the USDA Forest Service, and the Alabama Forestry Commission. The pilots will lead a coordinated effort to introduce Black landowners to certification and directly support efforts to gain certification through “on-the-ground” technical assistance.

**Project Details:** There are four components to this effort: 1) exposure of landowners to the rationale, opportunities, and benefits of forest (SFI) certification 2) on-the-ground technical assistance in obtaining forest (SFI) certification of Black-owned forestland; 3) developing geographic clusters of SFI certified Black landowners; and 4) field demonstration(s) and opportunities for landowners to visit (SFI) certified properties and talk to the owner(s).

Over 500 Black landowners will be reached in the three SFALRP pilot regions for forestry education, training and referrals with more than 80 receiving comprehensive services including legal support on land tenure questions, forest management plans, forestry practices, support for forest certification, and access to markets. If funded, this SFI program will be used to expand the training and direct technical support to landowners for understanding and enrollment in SFI certification. Those who may be interested (we estimate about 300) will be provided an opportunity to learn more about the SFI certification process and what would be needed for their properties to be SFI certified.

In West Alabama, a smaller group who have or are in the process of obtaining forest management plans, have initiated and are/or in the process of implementing forest management practices, will be encouraged to become SFI certified. These landowners will join in several geographic “clusters” to facilitate more efficient and affordable forest management and access to markets. Approximately 25 properties will be visited by LRLEAN staff (a retired State Forester, a former Alabama Forestry Commission Commissioner who is a current SFI certified landowner, a retired Alabama Forestry Commission field technician, and a retired NRCS agent.)

## **Project 2: Youth and Next Generation Engagement**

*A. Land Retention and Transition Planning for Families:* Multi-generational forest planning is critical for Black forest-owning families to ensure ongoing economically viable land uses and the intergenerational retention of Black-owned land. To prevent further land loss there is a need to support transition to new generation owners and for younger people of color to engage in natural resource management. However, for a successful transition, youth must be exposed to the educational tools and resources for managing family lands and forestry resources. The goal is to increase “next generation” Black family engagement in forest ownership and management.

The project is currently conducting a study of intergenerational attitudes, values, and aspirations about forestland ownership and forestry. The findings will inform outreach strategies used in the pilots to encourage intergenerational land values and ownership. Each pilot project will focus on supporting next generation landowners in planning for intergenerational transfer of land ownership. The primary tool will be one-on-one relationship building between family members and project outreach and forestry staff. Backup materials and education sessions will focus on succession planning, land tenure issues, emerging forestry opportunities, and business models with forestry as either a primary or secondary income source.

*B. Youth Outreach and Education:* Targeted outreach and education help youth appreciate the importance of conserving and managing forestland as a source of sustainable economic development. In an era where more and more youth of color are disconnected from nature, this project recognizes the importance of making a real investment in environmental education and outdoor learning to encourage the next generation to maintain profitable land uses and thereby help prevent land loss. By gaining an appreciation of the intrinsic, environmental, and economic value of forestry resources, youth will also have an increased openness to forest-related careers.

In North Carolina, 50 students will be recruited through African American church youth ministries. The project will work with government and private natural resource organizations to implement activities that demonstrate the wide range of career pathways in natural resources. The project will partner with colleges and universities to assist students with advice on curriculums offered, financial aid, and academic guidelines. Forest industry will emphasize the need of a highly-skilled workforce. The project will hold field trips to forest landowners, local parks, and NC Forest Service Educational Forests. One or more high school and/or college students will be offered internships.

Fifty high school students recruited by the pilot projects in Alabama, South Carolina and North Carolina will attend the Emerging Forestry Leaders Summer Institute hosted by the Federation of Southern Cooperatives/Land Assistance Fund (FSC/LAF). The Institute, a youth outreach program, is designed to provide hands-on forestry education and experiences. Students will participate in a week of intense learning opportunities in forestry and natural resource management at FSC/LAF's 1000-acre Rural Training and Research Center in Epes, Alabama, which is a certified forest and has established field demonstrations in agro-forestry, forest stewardship, and forest management.

The summer program will be designed for students who want to explore and experience activities in forestry and environmental and natural resource management related careers. The students will learn leadership skills and experience sustainable forestry management alongside forestry professionals, with a goal of exposing students to the economic benefits of forestland ownership. To encourage natural resource career choices, participants will attend a Forestry Education and Career Expo and Tour at an 1890 Land Grant University. The Expo will include presentations and panels by industry professionals representing colleges and universities, state and federal agencies, and private landowners. Students will produce a video to be used as an educational, outreach, and recruitment tool for the project partners.

## **Project 3: Change Landowner Trust and Engagement through Supportive Networks**

Initially when the Coastal SC partners met to form their network for this project, state and government agencies admitted they have not had much success in conducting outreach and providing services to

Black forestland owners. By creating a support network led by a nonprofit that specializes in land tenure and is trusted by Black landowners, the group plans to increase sustainable forest management for Coastal SC landowners. This unified system will deliver sustainable forestry practices to help Black forestland owners overcome years of generational mistrust of government - both state and federal - and forestry industries and to connect landowners to these agencies in new, more positive ways.

The goal of this project is to document the impact of a 'trusted networks' model for increasing Black landowner participation in government programs, forest management planning, forestry services, and forest certification. While this work will be initially focused on the SC pilot, it has implications and utility for all three pilot sites, federal and state agencies, forest associations and organizations, and other collaboratives working to effectively serve minority landowners.

Data will be collected from partners comprising the SC project's "landowner support network." Online surveys will be used to collect information, such as frequency of partner interaction, partner organization satisfaction, and partner benefits. Feedback from SC pilot partners will measure shared purpose, positive relationships, opportunities for regular interaction, and effectiveness of network leaders, coordinators, and facilitators.

An important component of this effort will be to develop an understanding of how various stakeholders interact across the range of issues involved and whether their collaboration increases impact on Black forestland owners. Knowledge of how these interactions facilitate or hamper forest management and retention by Black landowners will form a critical base of information for managing future efforts. The study is informed by the University of Wisconsin and Driftless Forest Network (DFN). These groups are at the forefront of refining analytical techniques (e.g. network; aka "spaghetti analysis") that clarify intersections and nodes of interaction among landowners and program delivery stakeholders. Dr. Drew Lanham of Clemson University, will anchor the SC project by documenting how well landowners' cultural perceptions of nature have dramatic effects on how natural resources are valued and ultimately conserved. According to Dr. Lanham, these cultural perspectives can be described as "land ethic." Lanham and Clemson students will examine the land ethic of select landowners and determine how these landowners' land ethic impact the delivery of sustainable forestry services. The project will:

1. Develop a Network Analysis to depict effectiveness of interactions between project partners and between those partners and Black landowners.
2. Analyze how interactions among private landowner clients and program provider/stakeholder entities influence land ethic, land retention and management activities.
3. Produce technical and lay presentations and multi-media publications that inform other investigators, relevant natural resources and social agencies, and the general public about the importance of equitable land ownership and management opportunities.

## **2. Impact on conservation categories**

**Forest Health:** In a recent paper proposing a Baseline Research study for this project, John Schelhas of the USDA Forest Service Southern Research Station summarized research about Black forestowners: "They (Black landowners) were also found to have smaller tracts and to either not engage in forest management or to manage land less intensively than the broader forest owner population. Furthermore, they were generally not aware of or using assistance programs, and they faced more constraints than their majority counterparts (Gan et al. 2003, Guffey et al. 2009)." It is broadly accepted that Black landowners have experienced discrimination in access to government and private forestry programs. Moreover, there is a history of exploitation by some unscrupulous forestry professionals that has particularly impacted Black landowners. These factors along with a high incidence of heirs' property have reduced active and effective management of Black-owned forests, damaged forest health, and added to the loss of forestland to other uses.

Among the critical results of the breach of trust with Black landowners has been underutilization of forestry professionals, lack of forest management plans, and consequent negative impact of forest health.

This project will establish more productive relationships between forestry professionals, forestry associations, and state and federal government forestry programs. Forest health will be impacted by increased forest management planning and sustainable forestry management. The project will use forest certification to encourage and guide restoration of forest health.

**Capacity Building:** The stated SFI capacity building objective is directed to tribal and indigenous people. However, many of the goals of that work can be translated to Black landowners in the Southern U. S. where there is existing forest industry and public and private forestry support capacity but an historic failure of that capacity to reach minority landowners. The opportunity presented by this project is a relatively accelerated process of integrating Black landowners into an already relatively robust support infrastructure if the historic barriers can be eliminated or reduced.

**3. Activities to Promote SFI Involvement in the Project?**

SFI would become a listed partner in the project. So far, the project has attracted significant attention in the upper leadership of USDA. Secretary Vilsack announced the opening of the initiative and has mentioned it on several occasions as a model public/private partnership when talking about StrikeForce. SFI will be invited to an upper-level USDA briefing planned for the project in early summer and introduced as a partner and sponsor. Also, the project would do a press release about SFI involvement and funding distributed nationally and in each project region. Local SFI representatives will be invited and introduced at press events to discuss the importance of forest certification to minority landowners. Local SFI representatives will be invited on any tours by government or private industry representatives.

Project Goals	Actions	Tangible Outcomes	Measure Success	Grant Funds	In-Kind or Matching
Increase African American forest health, market access, and profitability through forest certification.	Provide direct on-the-ground technical assistance and funding for certification as part of program's comprehensive forestry services program.	500 landowners receive information about certification. <i>125 landowners receive direct consultation on certification.</i> 50 landowners have or are in process of obtaining certification at end of 24 months	Project determines or strongly indicates whether or not certification increases access to markets, profitability and/or forest health for Black forest owners. (Measured over 6 year period)	\$32,500	\$61,000
Increase "next generation" Black family engagement in forest ownership and employment.	Advise Black forest-owning families in succession planning. Engage "next gen" forest owners in forest management planning. Conduct youth forestry programs.	75 landowners receive succession planning. <i>Multi-generation forest planning with 90 families.</i> 100 youth are exposed to forestry and forestry careers	"Next generation" interest in family forestry increases by 50% above 2014 baseline. (Measured over 6 year period) <i>Young people report increased appreciation for natural resources forest-related careers.</i>	21,500	24,000
Document impact of "trusted networks" model on landowner participation in government programs, forest management, and certification.	Network analysis about the early-stage impact of regional networks on Black landowner trust and engagement with government and private forestry support programs and private foresters and loggers.	A report is published that documents impact on Black Landowners in at least one regional project. Recommendations are made for future work based on findings.	A methodology is documented, measured, and further developed for building trust and increasing minority engagement in government and private forestry programs.	18,000	14,000

### Project Timeline

Expenses by Quarter End	9/30/14	12/31/14	3/30/15	6/30/15	9/31/15	12/31/15	Total Expenses
Landowner Certification	8,000	10,000	4,000	5,000	2,000	2,000	31,000
Next Generation Planning							Matching Funds
Youth Engagement - Afterschool	1,000	700	700	700	1,200	700	5,000
Youth Camp			2,000	4,000	10,000	2000	18,000
Network Development and Analysis	5,000	3,000	3,000	2,000	5,000		18,000

*Color represents time period for activity*

### Project Budget

Expenditure	SFI Funds	Total Match	Source of Matching Funds*	In-Kind*	Source of In-kind Contribution	Total per expenditure category
<b>Staff Salary and Benefits</b>	10,000	48,900	US End., NRCS, Other	\$10,000	Volunteers & partner orgs	68,900
<b>Operating Costs</b>						
Research Activities	18,000	8,000	SC NRCS CIG, US End	6,000	Landowner time	32,000
Travel	17,500	4,600	FSC/LAF, US End	16,500	Partner orgs	38,600
Education & Outreach	20,000	10,500	FSC/LAF, US End	3,500	Volunteers & partner orgs	34,000
Contractual	6,500	0				6500
<b>Total</b>	<b>72,000</b>	<b>72,000</b>		<b>36,000</b>		<b>180,000</b>

\*list sources and amounts of any matching funds or in-kind contributions for each project partner

For Conservation Projects in the United States:

For Conservation Projects in Canada:

**Sustainable Forestry Initiative, Inc.**  
 900 17th St. NW, Suite 700  
 Washington, DC 20006  
**Attention: Paul Trianosky**  
 Senior Director of Conservation Partnerships  
 Phone: 423-727-7222  
 E-mail: [Paul.Trianosky@sfiprogram.org](mailto:Paul.Trianosky@sfiprogram.org)

**Grant  
 Application  
 Template**

*Application  
 Requirements:*

**Sustainable Forestry Initiative, Inc.**  
 900 17th St. NW, Suite 700  
 Washington, DC 20006  
**Attention: Andrew de Vries**  
 Vice President, Conservation and Indigenous Relations  
 Phone: (613) 424-8734  
 E-mail: [Andrew.Devries@sfiprogram.org](mailto:Andrew.Devries@sfiprogram.org)

- Proposals must follow this application format.
- *Applications cannot be longer than 8 pages (Note that the required agreements to Public Communications, and the Lead Organization’s current proof of non-profit status do not count towards the 8 page maximum).*
- ***You may delete all text that precedes this section and any text in italics throughout the application.***

All applications must include the following items:

Organization Information

*The Lead Organization in the Project must be a non-profit organization (eg. A registered, tax-exempt 501(c)(3) in the US or registered with the Charities Directorate of the Canada Revenue Agency in Canada). Colleges, universities and schools qualify as non-profit organizations. Applicants must submit current proof of tax-exempt status with this application.*

Lead Organization Name and Address	The Longleaf Alliance, Solon Dixon Forestry Education Center, 12130 Dixon Center Road, Andalusia Alabama 36420
Name, phone and email for Project Director	Robert Abernethy, (803) 480-1849, robert@longleafalliance.org
Lead Organizational Mission Statement (25 words or less)	Our mission is to ensure a sustainable future for the longleaf pine ecosystem through partnerships, landowner assistance and science-based education and outreach.
Lead Organization Annual Operating Budget	2014 budget is \$1,843,000
Two references (Name, Organization, email and phone) who can speak to the relevance and potential impact of the Project (these should not be the same as your Project partners):	Glen Gaines, US Forest Service, ggaines@fs.fed.us, (404)273-1582 Clay Ware, US Fish and Wildlife Service, <a href="mailto:clay_ware@fws.gov">clay_ware@fws.gov</a> , (404) 679-4016

Project Overview

*The Project must relate to or support one or more elements of the SFI 2010-2014 Program. You can download a copy of the Standard and supporting documents from the SFI website here: <http://www.sfiprogram.org/sfi-standard/sfi-standards/>*

Project Title	Total Length of time for completio	Amount Request ed from SFI	Total Project Budget (includi	Brief Project Summary (50 words or less)	What element(s) of the SFI 2010-2014 Program are addressed by your Project? (Please cite the Standard Component(s))
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	n of project (in months, from commencement to final reporting)		ng matching funds and in-kind contributions)*		
Restoration of the Longleaf Pine informational document	6 months	\$12,300	\$18,300	Production of a short document to explain how sustainable forestry and commercial markets for longleaf pine products contribute to the restoration of this tree species. This document will be produced by The Longleaf Alliance in partnership with a diverse group of foresters, biologists and researchers.	<p>This Project is most relevant to Indicators in the 2010-2014 SFI Standard that address development and distribution of regionally appropriate information about conservation of biological diversity.</p> <p>Indicator 8.1.1: Program Participants shall supply regionally appropriate information or services (e.g. information packets, websites, newsletters, workshops, tours, etc.) to forest landowners, describing the importance and providing implementation guidance on:</p> <p>d. conservation of critical wildlife habitat elements, biodiversity, threatened and endangered species, and Forests with Exceptional Conservation Value;</p> <p>Indicator 17.1.3: Support for the development of regional, state or provincial information materials that provide forest landowners with practical approaches for addressing special sites and biological diversity issues, such as invasive exotic plants and animals, specific wildlife habitat, Forests with Exceptional Conservation Value, and threatened and endangered species.</p>

*\* Matching funds and in-kind contributions should be reflected again in the budget outline below, indicating the source for each amount and Project Partner*

Project Partners

*\*For each Project Partner, please complete the following table. This application must include a signed copy of the Agreement to Public Communications for each listed partner, as well as the Lead Organization. A copy of this agreement may be found at the end of this document.*

Confirmed Project Partners	Primary Contact Name	Complete Contact Information (Email, Phone Number, Mailing)	Brief Summary of Individual's and Organizations Qualifications and
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(list organization name only)	& Title	Address)	Experience (150 words or less per partner)
RMS	Jimmy Bullock, Sr. VP, Forest Sustainability	<a href="mailto:jbullock@resourcemt.com">jbullock@resourcemt.com</a> , (601) 529-1144, 425-B Highway 51 South, Brookhaven, MS, 39601	Jimmy Bullock oversees sustainable forestry policy and programs, forest certification, environmental and wildlife policy development and execution and related recreation programs for RMS-managed timberlands in the US. Jimmy earned his B.S. degree in Forestry/Wildlife from Mississippi State University in 1980. Two years later, he received his M.S. degree in Wildlife Ecology from MSU. Founded in 1950, RMS is a private timberland investment firm serving pension funds, endowments, foundations and family offices.
Forest Investments Associates	Marc A. Walley, Executive Vice President, Director of Timberland Management	<a href="mailto:mwalley@forestinvest.com">mwalley@forestinvest.com</a> , (404)261-9575, 3575 Piedmont Road NE, 15 Piedmont Center, Suite 1250, Atlanta GA 30305	Marc Walley started with FIA in 1994 and leads the Portfolio Management Team, which has responsibility for timberland management, portfolio management and client land sale and disposition activities. Marc holds a B.S. in Forestry from Auburn University, where he serves on the Development Committee for the School of Forestry and Wildlife Sciences. FIA, formed in 1986, is a Registered Investment Adviser providing investment management services for timberland investors including corporate pension plans, state and municipal retirement systems, endowments, foundations and family offices.
National Council for Air and Stream Improvement, Inc.	T. Bently Wigley, Ph.D., Manager of the Sustainable Forestry and Wildlife Program for the National Council for Air and Stream Improvement,	<a href="mailto:WIGLEY@clemson.edu">WIGLEY@clemson.edu</a> , (864) 656-0840, PO Box 340317, Clemson, SC 29634-0417	Dr. T. Bently Wigley is Manager of the Sustainable Forestry and Wildlife Program for NCASI, a non-profit research organization that addresses environmental issues of importance to the forest products industry. Through research and other activities, NCASI develops technical information that helps the forest products industry meet its environmental goals including the sustainable management of forests.

International Paper (IP)	Inc. (NCASI)  Sophie Beckham, Forest Stewardship and Sustainability Manager	<a href="mailto:Sophie.Beckham@ipaper.com">Sophie.Beckham@ipaper.com</a> , <a href="tel:(828)337-2572">(828) 337-2572</a> , <a href="#">6400 Poplar Ave.</a> <a href="#">Memphis. TN 38197</a>	IP is a global leader in packaging, paper and fluff pulp with manufacturing operations in North America, Europe, Latin America, Russia, Asia and North Africa. Businesses include industrial and consumer packaging, fluff pulp and uncoated papers.
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Project Details

*Please provide answers to the following questions to describe your project.*

- 1. Please provide an introductory narrative describing (a) the basic methodology, and (b) the intended impact of your project*

In October, 2013, the International Union for the Conservation of Nature (IUCN) designated the longleaf pine as “Endangered”. According to their criteria, this designation was appropriate because the species had declined between 50% and 80% over the last 3 generations (a generation was defined as 30 years, total of 90 years). Concern was raised by a timber buyer in Europe and the question was asked, “How can you assure us that no longleaf pine is being shipped to us?” Since October, several partners have discussed how to address this concern by international buyers of southeastern US forest products and educate them on what is currently being done to restore the longleaf pine. In January, the US Forest Service appealed the decision to list longleaf and the listing was upheld by the IUCN. A meeting of the partners determined that the best course of action would be to compile the existing data available on the restoration of the longleaf pine and publish an informational document that the partners could use to explain all that is being done to restore the longleaf pine ecosystem. This project would; (1) compile existing data, (2) produce and publish a short (8 page) informational document what would explain the ongoing effort to restore the longleaf and (3) distribute 1,000 copies to the partners for use when meeting with international buyers to assuage any concerns that the sale of southeastern forest products are adversely impacting the longleaf pine ecosystem. The document would pro-actively explain how the sale of longleaf forest products is critical to the restoration of the species. The proposed document would use scientific references and documentation but would be written for the lay person that may not be familiar with technical forestry terms. The document would be written by The Longleaf Alliance with input and review by the partners. It is anticipated that the document would be completed and distributed by September 31, 2014. A unique opportunity exists concerning the longleaf pine; creation and strengthening of markets for longleaf based wood products can directly lead to more private landowners restoring longleaf pine across the historic range. This is the perfect example of the integration of ecological and economic objectives to help achieve an overall ecosystem restoration strategy for this forest type.

- 2. Please explain how your project will illustrate or inform the role of SFI in one or more of the five conservation categories listed on the first page (Note that SFI may consider compelling projects that may fall outside these categories)*

The majority of land in the southern United States is privately owned. Most, if not all, private forest landowners need to make a profit from their land. The sale of forest products is often the greatest and the most common income stream available to the landowner. Longleaf pine can produce a competitive income for the landowner but only if the markets are available. Should this designation by IUCN shut down markets for longleaf pine, landowners could be forced to liquidate their stands of longleaf pine timber and convert the land

to another species or another use. This action would not benefit the landowner, the longleaf pine ecosystem or the wildlife resources that depend on the longleaf pine ecosystem for survival. This project would explain how sustainably managed longleaf pine forests can protect, promote, improve and restore ecosystem values and wildlife habitat while still providing a long term sustainable income stream for the landowner from his forest.

3. *What activities will you and your Project partners perform to promote the outcomes of your Project and SFI Involvement in the Project?*

Upon completion of the project, the document will be distributed to the partners for their use as well as distributed by The Longleaf Alliance throughout the 9 state range of the longleaf pine through longleaf academies and landowner and industry workshops and field days. The document will be distributed at the 10<sup>th</sup> Longleaf Conference in October 2014 where over 300 landowners and forestry professionals are expected to attend.

4. *In the table below, please list the goals for your project. For each goal, please describe: the actions you will take to achieve your goal; the corresponding tangible outcomes (e.g. provide implementation guidance on a component of the SFI Standard, landowners reached through education programs, acres positively affected by the Project); the means by which you will measure success in achieving each goal, and; the portion of the requested grant funds that would be used to achieve the goal. Add rows as needed to address all project goals.*

Project Goals	Actions	Tangible Outcomes	Measure Success	Grant Funds	In-Kind or Matching Funds
Produce informational document	Beginning in April, the document will be written by The Longleaf Alliance in consultation and with the review of the partners.	Production of 1,000 copies of the 8 page document	Producing a successful document by September 1, 2014	\$12,300	\$6,000
Distribute informational document	Distribute the document through the partners	Distribution of the documents	Distribution of at least 500 documents by October 1, 2014		

Project Timeline

*Please provide a timeline for completion of the project. Projects may range to a maximum of three years. Projects will commence at the time the Grant Agreement is signed, soon after notification of acceptance of your proposal. The timeline should indicate when you will deliver upon the goals and outcomes – project payments will be tied to attainment of project milestones and will be generally be made on a six-month payment schedule. SFI will receive and process invoices during a brief window each quarter (eg. in March, June, September and December). The specific timeline for each project will dictate the schedule of reports and payments.*

- April 2014 The Longleaf Alliance would be notified of award and the project would begin.
- April through July 2014 The Longleaf Alliance will be writing and working with the partners on input and review.
- August, 2014 Document will be published

- September, 2014 Document will be distributed.
- October 1, 2014 Project will be completed.

**Project Budget**

Please fill out the table below to illustrate the entire Project budget. SFI Inc. will not award any funds for organization overhead costs, which include but are not limited to, office rent or maintenance, utilities, temporary hires, etc. While some portion of the grant may be used to offset staff salary and benefits, the focus should be on-the-ground activities.

You may modify this table to fit your needs, however please ensure your budget addresses the following components:

1. Portion of the budget to be allocated to each staff person working on the Project
2. Total Operating costs by line item, eg. travel, meetings, communications, education & outreach (please add categories as needed)
3. Identify any in-kind support allocated to this Project by each project partner
4. Identify any matching funds allocated to this Project by each project partner

<b>Expenditure</b>	<b>SFI Grant Funds</b>	<b>Total Matching Funds</b>	<b>Source of Matching Funds*</b>	<b>In-Kind Contributions*</b>	<b>Source of In-kind Contributions</b>	<b>Total per expenditure category</b>
<b>Staff Salary and Benefits</b> (please list budget amount individually per staff person) Principle writer \$5,000 editor \$800 second writer \$1,200 admin \$800						\$7,800
<b>Partner Staff time</b>		\$6,000	In-kind, time	In-kind time	In-kind, time	\$6,000
<b>Operating Costs</b>						
Research Activities						
Meetings						
Travel						
Education & Outreach						
<b>Communications</b> Graphic artist \$2,500 Printing \$2,000						\$4,500
<b>Total</b>	<b>\$12,300</b>					

\*list sources and amounts of any matching funds or in-kind contributions for each project partner

**Agreement to Public Communications**

As part of the Grant Application, the Lead Organization must complete and sign this page.

## Organization Information

Lead Organization Name & Address	<b>Heiltsuk First Nation</b> 226 Wabalisla, Bella Bella, BC Box 880 V0T 1Z0	
Name, phone and email for Project Director:	Jennifer Carpenter, Culture & Heritage Manager <a href="mailto:Jcarpenter2@heiltsuknation.ca">Jcarpenter2@heiltsuknation.ca</a> 250-957-2303 ex 225	Sapphire Humchitt, HTC Chief Financial Officer <a href="mailto:CFOfficer@heiltsuknation.ca">CFOfficer@heiltsuknation.ca</a> 250-957-2381 Denise Carpenter, Executive Assistant, HIRMD <a href="mailto:hirmdea@heiltsuknation.ca">hirmdea@heiltsuknation.ca</a> 250-957-2303
Lead Organizational Mission Statement:	<b>Heiltsuk Integrated Resource Management Department</b> For generations, Heiltsuk ancestors acted as stewards over our waters, land and resources respecting all life it sustains. Our vision and approach remains unchanged. We uphold the principles of eco-based management as a foundation for our conservation-based economy.	
Lead Organization Annual Budget:	\$1.6 M	
Two references who can speak to the potential of the Project:	Morley Eldridge President of Millennia Research <a href="mailto:morley@millennia-research.com">morley@millennia-research.com</a> 250-360-0919 <a href="http://millennia-research.com">http://millennia-research.com</a>	Nancy Turner, Distinguished Professor Environmental Studies, University of Victoria, Victoria, BC <a href="mailto:nturner@uvic.ca">nturner@uvic.ca</a> 250-721-6124
Third reference who can speak to the potential of the Project	Doug Glaum, Manager, Permitting and Assessment Section, BC Archaeology Branch <a href="mailto:doug.glaum@gems3.gov.bc.ca">doug.glaum@gems3.gov.bc.ca</a> 250-953-3357	<i>Doug was the BC Archaeology Branch liaison with Heiltsuk on the Heiltsuk Traditional Territory Archaeological Overview Assessment project 1997</i>

Project Title	Heiltsuk Culturally Modified Tree Database & Management System
Total Length (in months)	20 Months
Grant request	2014: <b>\$39,500</b> 2015: <b>\$26,500</b>
Total Budget	2014: <b>\$48,500</b> 2015: <b>\$29,000</b>
Brief Project Summary:	Develop a database process for recording, tracking, managing and through spatial analysis in GIS, improved understanding of location and cultural importance of culturally modified trees as distributed throughout Heiltsuk Traditional Territory. This project will build upon existing data while improving access and use of the information within the community and for forest management activities.
Elements(s) of the SFI 2010-2014 Program addressed:	<b>Objective 6. Protection of Special Sites</b> <i>To manage lands that are ecologically, geologically or <b>culturally</b> important in a manner that takes into account their unique qualities.</i> <b>Objective 18 – PM 18.2</b> <i>Program participants with forest management responsibilities on public lands shall confer with affected indigenous peoples (communication with indigenous peoples, understanding and respect for traditional forest-related knowledge, identify spiritually, historically or culturally important sites and address use of non-timber forest products of value to indigenous peoples)</i>

## Partner Organization Contact Information

Project Partners	Primary Contact Name/Title	Contact Information	Phone	Brief Summary of Individual and Organizations
Heiltsuk First Nation	Jennifer Carpenter <i>Culture &amp; Heritage Manager Heiltsuk Integrated Resource Management Department</i>	<a href="mailto:JCarpenter2@heiltsuknation.ca">JCarpenter2@heiltsuknation.ca</a>	250-957-2303 ex 225	Lead organization Jennifer Carpenter, is a UBC trained anthropologist with extensive experience and knowledge documenting traditional use within the Heiltsuk Territory, and use of GIS in data management and analysis to support decision making
International Forest Products Ltd.	Rhiannon Poupard, <i>Manager, First Nations &amp; Forestry Partnership</i>	1250 Ironwood Street, Campbell River BC, V9W 6H5 <a href="mailto:Rhiannon.Poupard@interfor.com">Rhiannon.Poupard@interfor.com</a>	250-286-5124 778-348-4559	Major Licensee - <u>SFI Program Participant</u> Experience in successfully delivering on conservation/community grant projects
MFLNRO	Kathy DesRochers <i>Senior Advisor, First Nations Relations</i>	PO Box 7000, Port McNeill BC, V0N 2R0 <a href="mailto:Kathy.Desrochers@gov.bc.ca">Kathy.Desrochers@gov.bc.ca</a>	250-956-5093	BC Government – Ministry of Forests Lands and Natural Resource Operations – North Island-Central Coast District

## Project Details

*The final outcomes of this project will apply to the Traditional Territory of the Heiltsuk Nation which includes a large portion of the Mid-coast region in an area known as The Great Bear Rainforest. This area includes a significant portion of SFI certified forests, where Interfor and other licensees conduct forest operations. Where applicable, the outcomes of this project will be shared and/or used in a broader scope. The project will be communicated and shared with neighboring and other First Nations including, but not limited to, Wuikinuxv and Nuxalk. While structures and process developed through the project will be shared, it is understood that the Heiltsuk First Nation retain their respective inherent rights including all intellectual property rights associated now and in the future and have ownership of all cultural information obtained and used during this project.*

## **Project description**

The Heiltsuk seek to investigate and document ancestral utilization of forest resources as an integral part of Heiltsuk culture and heritage. The Heiltsuk recognize all resources as a gift of the creator. In addition to sea resources, the Heiltsuk made extensive use of land and forest resources. Culturally modified trees preserve a partial, but compelling record of Heiltsuk presence on the land and utilization of forest resources. Evidence of traditional environmental knowledge is preserved in Heiltsuk language, oral traditions, and contemporary teaching. The Heiltsuk seek to map existing physical evidence of Heiltsuk utilization of these resources to the greatest extent possible to better understand and demonstrate evidence of traditional environmental knowledge (Heiltsuk CMT Investigation Strategy 1995). This project has the following goals:

- 1) Development of a database and information management system for Culturally Modified Trees (CMTs) (1<sup>st</sup> year)**

The first goal will focus on designing a database that can be utilized in GIS to systematically map and capture data for CMTs in an effort to improve accessibility and support spatial analysis and production of maps and reports. Currently the data held by the Heiltsuk First Nation regarding site specific information about CMTs is not easily accessible (hard-copy reports). The power of housing this information in a spatial database is that it will become significantly more accessible, and through GIS a number of data layers can be manipulated for advanced analysis. The database can be used to help understand patterns of use and significance, including relationship to other types of cultural sites, and their significance. Furthermore, the database will facilitate the understanding and transfer of traditional knowledge within the Heiltsuk community. The database will also be used to help improve predictability modeling. From a forest management perspective, the database will be a tool for the community to use when considering forest development plans during the information sharing process.
- 2) Develop a process/protocol for data entry, use, and application of the database and train Heiltsuk members in data entry and analysis**

The purpose of this goal is to ensure that a process for meaningful use of the database is in place. This will include training for at least 2 Heiltsuk community members as database managers/custodians. This goal will also include the development of data collection and data entry standards to ensure information from ongoing studies is formatted appropriately for upload into the database.
- 3) Merge existing information into the database**

A GIS procedures manual will be developed to ensure that previously collected and known information (for example B.C. Archaeology Branch inventory data and Heiltsuk Traditional Use Study data), can be combined with the CMT data layer for spatial analysis and create reports, so that past present, and future data can be merged to support management objectives and decision making.
- 4) Forest Professional Awareness & Understanding**

The purpose of this goal is to facilitate general CMT awareness and understanding for forest professionals conducting forest management activities within the Heiltsuk traditional territory. This will be achieved by organizing event in which forest professionals attend a field session with Heiltsuk community members and project partners to gain a better understanding and awareness of traditional use within the territory, particularly with respect to the management of forest resources.
- 5) Field studies to inventory and collect further information in key areas (2<sup>nd</sup> year)**

The purpose of this goal is to conduct targeted field studies in areas of high importance and to date existing tree samples gathered by Heiltsuk. This data will be added to the CMT database and will increase the inventory of information within the database. This will enhance the value of the database and provide an opportunity to implement/refine the data collection protocols determined in Goal #2. Ongoing/future inventory collection will be facilitated through current/future studies conducted by the Heiltsuk and regular forest management activities undertaken as part of the consultation process, including site assessments during development planning.
- 6) Public Outreach**

The purpose of this goal is to ensure that the results of this project and the support provided by SFI are shared with other parties that may benefit from the outcomes. This will include other First Nations communities, Forest Professionals, Industry players and government.

***For conservation projects, please explain how your project will illustrate or inform the role of SFI in the requested topic.***

The project will benefit forest management on public land on the BC Central Coast, provide tools to support improved identification, management and protection of cultural resources and improve the application of SFI standard (especially objectives 6 & 18) by:

- creating an accessible and usable database of known information regarding cultural features/sites
- facilitate a better understanding of where additional forest management may be required to manage these features
- facilitate the ability of the First Nation community to communicate potential impacts to the forest industry
- facilitate the cataloguing and documenting of community held knowledge
- building understanding and support for the SFI program among BC Coast First Nations communities and their leaders
- gain deeper understanding of traditional forest use and management practices for sustainability and resilience

***What activities will you and your Project partners perform to promote the outcomes of your Project and SFI Involvement in the Project?***

1. Public outreach: present project to communities (Chief and Council Meetings, Community Days etc.) The outreach will focus on how the SFI program supports First Nations' cultural needs through its standard and this proposed program.
2. Develop and promote a video presentation documenting the progression of the project. The video may be placed on the WSIC website, available for the SFI website, and other educational and community websites that have an interest in this work.
3. Present through the Western Canadian SFI Implementation Committee
4. Present through partner extension and outreach mechanisms (partner websites, news releases newsletters, meetings, public presentations)

Note: In all instances the SFI Program and logo will be highlighted and promoted.

**Project Goals**

Project Goals	Activities	Tangible Outcomes	Measure Success	Grant Funds	In-Kind or Matching Funds
Goal 1: Develop a database structure for housing CMT data	<ol style="list-style-type: none"> <li>1. Review goals and objectives of the Heiltsuk CMT Investigation Strategy 1995.</li> <li>2. Consider currently available data and database designs (e.g. BC Archaeology Branch Inventory data, CMTs of BC Handbook 2001 v.2)</li> <li>3. Identify additional data relating to CMTs that we will want to track in a database</li> </ol>	Database structure	Success will be achieved when a usable database has been built	\$16,500	2,000

	4. Work with IFP or other technical resources to build the structure (GIS application).				
Goal 2: Develop a process/protocol for use and application of the database and train Heiltsuk members	1. Work with IFP or technical resource to establish process and standards for database use 2. Provide training for Heiltsuk members on data collection, database use, interview data etc.	Process and Standards exist Community members trained	Minimum 2 members of HIRMD trained in the process/protocol for use and application of database	\$6,000	N/A
Goal 3: Merge existing information into database	Using protocol defined in Goal 2, populate the database developed in Goal 1 with known/existing information	Database is populated with known/existing info/data	Database is up and running with data	\$15,000	N/A
Goal 4: Forest Professional Awareness Day	Joint field workshop with forest professionals from partner organizations and knowledgeable community members from Heiltsuk Nation	Increased awareness and understanding of CMTs, as related to other types of sites, and to insights their study can provide into traditional ecological and technical knowledge	Number of forest professionals that attend training	\$2,000	\$5,500
Goal 5: Field studies of key areas to collect additional data	Field studies conducted in (3) key areas identified by the Heiltsuk Nation. This information will be used to further add to the database	Increased inventory in the database	Number of sites where information is collected and uploaded to the database	\$25,000	
Goal 6: Public Outreach and Education	SFI Program Participant Partners to complete project promotion activities listed above	Public awareness and extension of project outcomes	Outreach activities completed	n/a	\$2,500

### Project Timeline

Identify and or hire internal/external resources that will be used for database development	April 2014
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Primary goals of database defined, initial/draft structure created and tested	May - June 2014
Feedback from initial draft structure collected and provided to developers, updates and changes made as requested	June – July 2014
Finalized database structure completed. Training conducted with community members that will be using database.	August- September 2014
Existing data is merged into database structures. Any changes needed to structure are identified and communicated.	September - Nov 2014
Forest professional awareness day	September 2014
Database structure is finalized and populated with existing data	December 2014
Office work for 2015 field studies completed	January – April 2015
Field studies completed in 3 key areas	May – July 2015
Field study data is uploaded into database	August – September 2015
Database structure, uses and learning’s are shared with neighboring First Nation communities (Wuikinuxv, Nuxalk)	September – Nov 2015
Final project reporting and outreach activities	Nov – Dec 2015
<b>Project timeline Start – Finish</b>	<b>April 2014 – Dec 2015</b>

*Note: Public outreach will be conducted throughout the project timeline as opportunities arise.*

**Budget**

<b>Expenditure</b>	<b>TOTAL COST</b>	<b>Amount Requested</b>	<b>Matching Funds</b>	<b>In-Kind Contributions</b>
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<b>2014</b>				
Database baseline and context	2,500	2,500		
GIS/Technical work - Database Development - Protocol / process documentation - Training Heiltsuk users	22,000	20,000		2,000 (IFP GIS Staff)
Population of the database with current/existing data	15,000	15,000		
Heiltsuk /Forest Professionals – Joint Field Day for Awareness & Understanding - Travel expenses - Logistics	7,500	2,000	4,500 (IFP travel expenses)	1,000 (IFP staff coordination)
<b>2014 Total</b>	<b>\$47,000</b>	<b>\$39,500</b>	<b>\$4,500</b>	<b>\$3,000</b>

<b>2015</b>				
2015 Field studies & dating existing cookies	25,000	25,000		
2015 – Ongoing support for database	2,500	1,500		1,000 (IFP GIS staff)
<b>2015 Total</b>	<b>\$27,500</b>	<b>\$26,500</b>	<b>N/A</b>	<b>1,000</b>

Public Outreach (both years)	3,000	\$0		3,000 (IFP Staff)
<b>Project Total</b>	<b>\$77,500</b>	<b>\$66,000</b>	<b>\$4,500</b>	<b>7,000</b>

February 20, 2014

Paul Trianosky  
Senior Director of Conservation Partnerships  
Sustainable Forestry Initiative Inc.  
900 17<sup>th</sup> Street, NW Suite 700  
Washington, DC 20006

Dear Paul,

Please find the following proposal in response to the Sustainable Forestry Initiative's 2014 Conservation Grant request for proposals. This project, *Development of a best management practices field guide to mitigate the impacts of resource roads on wetlands* will further the understanding of wetland process and identification and the links with road planning, construction and maintenance techniques. A significant component of this project will be the training opportunities and outreach activities that will be delivered to SFI certified companies from across Canada. This information development and training opportunities will provide valuable information and assistance to SFI certified companies to meet many of the key objectives of the SFI program.

This proposed project will expand on the knowledge and partnerships that have been built through the previous SFI Conservation Grants that had supported research activities in Atlantic and Western Canada that focused on the understanding of the interaction of forest roads and wetlands. These previous projects, which were principally research based, provide the foundation in which this new project will be built through the contributions of SFI Implementation committees, SFI certified companies, provincial governments, Ducks Unlimited Canada and FPIInnovations.

On behalf of all of the project partners, I would like to thank you for the opportunity to submit this proposal and we are confident that this proposal will not only bring value to SFI certified companies but will also provide significant opportunities for exposure of the SFI brand.

Sincerely,



Mark Partington, M.Sc., R.P.F., EP  
Senior Researcher

c.c.: C. Smith, Ducks Unlimited Canada; D. Kopecky, Louisiana-Pacific; M. Maxfield, Resolute Forest Products; J. Gilbert, J.D. Irving; P. McLaughlin, New Brunswick Dept. Env. Loc. Gov.; W. Crosina, Weyerhaeuser.

<b>Lead Organization Name and Address</b>	FPIInnovations 570 Saint-Jean boulevard Pointe-Claire, Québec, Canada H9R 3J9
<b>Name, phone and email for Project Director</b>	Mark Partington 514-782-4525 mark.partington@fpinnovations.ca
<b>Lead Organizational Mission Statement</b>	FPIInnovations is among the world's largest not-for-profit forest research centers. It helps the forest industry develop innovative solutions based on the unique attributes of Canada's forest resources.
<b>Lead Organization Annual Operating Budget</b>	\$97 million (organizational level) \$15 million (divisional level)
<b>Two references who can speak to the relevance and potential impact of the Project:</b>	Bob Wynes, Executive Director, Govt of Saskatchewan, Environment Department, Forest Service, <a href="mailto:bob.wynes@gov.sk.ca">bob.wynes@gov.sk.ca</a> , 306-953-2491. Joe Churcher, Supervisor, Forest Policy Section, Ont. Min. Nat. Res. <a href="mailto:joe.churcher@ontario.ca">joe.churcher@ontario.ca</a> , 705-945-5710.

<b>Project Title</b>	<b>Total Length of project</b>	<b>Amount Requested from SFI</b>	<b>Total Project Budget</b>	<b>Brief Project Summary</b>	<b>What element(s) of the SFI 2010-2014 Program are addressed by your Project?</b>
Development of a best management practices field guide to mitigate the impacts of resource roads on wetlands.	30 months May 2014 – October 2016	Total \$95 000 Year 1 \$26 000 Year 2 \$32 000 Year 3 \$37 000	\$ 946 300	The development of a national best management guide for field practitioners to mitigate the impacts of resource roads on wetlands in forested regions of Canada. Document will further the understanding of wetland identification, processes and road planning, construction and maintenance techniques with application throughout Canada. Numerous workshops, webinars and training opportunities will be performed.	Obj.2.Forest Productivity Obj.3.Protection and maintenance of water resources Obj. 4 Conservation of Biological Diversity Obj.10.Adherence to best management practices Obj.14.Legal and Regulatory Compliance Obj.15.Forest research, science and technology Obj.16.Training and education Obj. 18. Public Land Management responsibilities Obj.20.Management review and continual improvement

Confirmed Project Partners	Primary Contact Name & Title	Complete Contact Information	Brief Summary of Individuals and Organizations Qualifications and Experience
FPIInnovations	Mark Partington, R.P.F., M.Sc., EP. Senior Researcher	mark.partington@fpinnovations.ca 514-782-4525 FPIInnovations 570 Saint-Jean boulevard Pointe-Claire, Québec H9R 3J9	Mark is a registered professional forester (R.P.F.) in Ontario and a certified environmental professional (EP) with an undergraduate degree in Forestry and Environmental Management (B.Sc.F.) from the University of New Brunswick and a graduate degree in Natural Resource Sciences (M.Sc.) from McGill University. Mark has worked with FPIInnovations for the past 16 years and is currently a Senior Researcher in the Resource Roads and Environmental Impacts Groups.
Ducks Unlimited Canada	Christopher E. Smith, CWB Certified Wildlife Biologist, Head Conservation Partnerships - Forestry	c_smith@ducks.ca Ducks Unlimited Canada Cranberry Portage, Manitoba (204)620-0328	Chris is a Certified Wildlife Biologist and a graduate of the University of Montana. Over the years he has worked as a field biologist, helped develop forest industry best management practices, worked on environmental impact assessment, land-use and protected areas planning, development of a forest lands inventory for Mb and in recent years DUC's Enhanced Wetland Classification. Chris is currently responsible for leading Conservation Partnerships with the forest sector for DU's Boreal Program.
Louisiana-Pacific	Donna Kopecky, District Biologist	Donna.Kopecky@lpcorp.com Louisiana-Pacific Forest Resources Division P.O Box 998 Swan River, MB 204-734-4102	Donna has worked with LP Canada Ltd. as the District Biologist for the last 15 years. Prior to her work with LP, she was employed with the Ontario Ministry of Natural Resources. As the District Biologist, Donna assists with the development of short and long-term forest management plans, coordinates research and monitoring studies that focus on watershed and biodiversity related topics, assists forestry operations with addressing water and biodiversity related issues and is involved on both government and forest industry committees to improve knowledge and advance forest practices related to water, biodiversity and species at risk.
Resolute Forest Products	Mike Maxfield, R.P.F., Certification and Communications Manager Ontario and Chair of the Central Canada SFI Implementation Committee (CCSIC)	mike.maxfield@resolutefp.com Resolute Forest Products 100 Neebing Avenue, Thunder Bay, Ontario P7E 6S3 807-475-2626	Responsible for growing and maintaining the ISO 14001 Environmental Management System, SFI Certification program and FSC Certification program for Resolute Ontario Woodlands of roughly 5.5 million hectares. Support role in providing leadership to the company SFI / PEFC / FSC / CW / Chain of Custody Certification at the 4 Resolute Mill facilities in Ontario. Also support the development and growth of SFI & FSC forest certification programs on COOP SFLs in which the company is a shareholder; roughly an additional 5 million ha.
J.D. Irving	John Gilbert, Manager Fish, Wildlife,	gilbert.john@jdirving.com J.D. Irving, Limited Woodlands Division	Graduated from University of New Brunswick 1975, BScF in Wildlife Management. Employed with the New Brunswick Department of Natural Resources 1975 - 1990 Manager of fish habitat and water-related programs. J.D. Irving, Limited from 1990

	Environment	PO Box 5777, 300 Union St Saint John, NB E2L 4M3 506-636-1051	to present. Manager, Fish, Wildlife & Environment - involved in all aspects of fish, wildlife and environmental management relating to forest planning and operations including the design of best practices for watercourse and wetland forest road crossings.
New Brunswick Dept. Env. and Loc. Gov.	Peter McLaughlin, Director of Surface Water Protection	peter.mclaughlin@gov.nb.ca P.O. Box 600 Fredericton N.B. E3B 5H1 (506) 457-4850	Peter is a biologist and has worked for the Department of Environment and Local Government for the past 25 years. He has worked as a Regional Director and the Director of the Provincial Analytical Service Laboratory and most recently as the Director for Surface Water Protection in the province. Peter is responsible for the administration of the Watercourse and Wetlands Alteration program and is currently involved in the development of a new wetlands management strategy for the province.
Weyerhaeuser	Wendy Crosina	wendy.crosina@weyerhaeuser.com #201 2920 Calgary Trail NW Edmonton, Alberta Canada T6J 2G8	Wendy Crosina is the Manager of Forest Stewardship for Weyerhaeuser Canadian Timberlands. She is responsible for management of forest ecology and wildlife issues for Weyerhaeuser Timberlands in Canada. Wendy is a registered professional biologist and a registered professional forester and brings experience from both professions. She works with stakeholders and Weyerhaeuser operational personnel to promote sustainable forest management on the Weyerhaeuser tenures.

### Project Details

Canada's forested landscapes feature numerous wetlands, such as fens, bogs and swamps, which present environmental and operational challenges during the planning, construction and maintenance of resource roads. The effects of these roads on the many ecological functions of wetlands are of increasing concern to Canada's resource-based industries, governments, communities and conservation organizations. Wetlands provide many ecological functions, such as water and carbon storage, filtering of precipitation during groundwater recharge, maintenance of downstream flows, support for plant communities, and wildlife habitat, often providing unique biodiversity values. On a global scale, Canada's natural resources, and particularly its boreal forests and peatlands, play a major role in carbon sequestration, since both act as large carbon sinks. Altering the hydrological regime of a wetland can alter its carbon balance. Any resource management activity that disrupts a wetland's ability to sequester and store carbon will soon become more of a focus as reporting becomes more comprehensive and as the cost of purchasing carbon offsets increases. The low bearing capacity of in situ soils and the high soil moisture levels that dominate wetland environments necessitate optimized planning strategies, properly designed road infrastructure and cost-effective construction methods to achieve successful road performance. The inadequate bearing capacity of subgrade materials and the placement and installation of drainage and water-crossing structures needed to provide continued hydrologic function, are two key challenges for resource roads that cross wetlands.

Currently, knowledge gaps exist regarding both impacts of resource roads on wetlands in forested regions of Canada and planning and operational practices to mitigate these impacts. To address these knowledge gaps, FPIInnovations launched a research program in 2010 to investigate, develop and evaluate field based practices for forest road managers. Concurrent with this initiative Ducks Unlimited Canada identified resource roads as key landscape features that can have considerable impact on these extensive wetland systems. A key component of this research program has been the development of research partnerships with universities,

governments, Ducks Unlimited Canada and various forest industry partners, including SFI certified companies. These partnerships have begun to produce innovative and respected research results and implementation documents. The success of these partnerships is due in large part to previous SFI funded projects that have supported this work. These SFI projects are scheduled to reach the end of their funding cycle in March 2014.

FPIInnovations is now entering the fifth year of research efforts on forest roads and wetlands. Much work has been completed however, the development of a comprehensive field based document with a national scope that communicates the importance of wetlands and presents best management practices to those concerned and involved with the management of forest roads is lacking. A key component of ensuring the success of research efforts will be the development of best management practices for forest roads when required to cross wetlands and subsequent training to forest industry and government field staff. The current 2015-2019 SFI Standard Revision process has resulted in enhanced criteria to protect wetlands. As such, this project will provide SFI certified companies with significant information and support for demonstrating continuous improvement in protecting wetlands as well as the protection of water resources, adherence to provincial and federal regulations, responsible management of crown lands and training of industry staff, all of which are key components to the SFI certification system.

We are seeking support for the development of a national field guide for resource roads and wetlands that is planned to commence in May 2014 and by December 2016 we expect document development, distribution and training activities to be complete. This work is planned for three principle stages:

- (1) Information gathering. This phase is focused on collecting information to fill the final knowledge gaps, developing early drafts of the field guide and consultations with project partners in collaboration with Regional SFI Implementation Committees. Interim supporting documents will be produced at this time and field based training workshops and webinars will be developed and delivered.
- (2) Field guide development. The second phase of this work will focus on developing final content of the field guide, including an extensive review and presentation of feedback by the project partners. The framework and structure of the final document will be developed as will be the communication strategy for the final field guide and its supporting documents.
- (3) Document delivery and training initiatives. The third and final phase of this initiative will be producing and printing the field guide, including all supporting documents in both official languages. The training workshops, both classroom and field based will be organized and delivered throughout the country. The delivery of these training documents will initially be focused to the immediate project partners but will also be offered and extended to all SFI certified companies across Canada through the Regional SFI Implementation Committees.

Throughout these stages numerous activities will be performed to ensure successful completion of these projects. SFI contributions to this project will benefit from significant funds already secured from FPIInnovations and Ducks Unlimited Canada, in addition to the in-kind funds from project partners. An additional activity which will be fully funded by FPIInnovations and Ducks Unlimited Canada is the

continued monitoring of research sites that have been established throughout Canada, including those established under the previous SFI funded roads and wetlands projects in Atlantic Canada and Manitoba and Saskatchewan.

This project and the partnerships between FPIInnovations and Ducks Unlimited Canada will provide considerable opportunities for communication of this initiative and strengthening linkages between this valued work and the SFI brand. At a project delivery level, the SFI brand will be highlighted as a key contributor and partner in all documents produced in this initiative, including the final field guide as well as in all presentations and training documents that will be delivered. This includes exposure to approximately 80% of all Canadian forest operations through the traditional communication pathways of FPIInnovations. This successful partnership project will be announced through press releases, in both official languages, and will be the focus of articles in magazines such as Canadian Forest Industries and Conservator, the magazine of Ducks Unlimited Canada. FPIInnovations and Ducks Unlimited Canada would also attend and present the project at the 2015 or 2016 SFI annual conference.

Project Goals	Actions	Tangible Outcomes	Measure Success	Grant Funds	In-Kind or Matching Funds
<b>Goal 1:</b> Further understanding of the interaction of wetlands and resource roads	Continue monitoring of existing research sites and where available, establish new sites.	Increased knowledge of the performance of recommended best management practices.	Development of recommended best management practices for resource roads in wetlands.	None requested	<u>In-kind</u> FPI - \$132 700 DUC - \$195 000
<b>Goal 2:</b> Fill knowledge gaps regarding existing practices for reducing impacts of resource roads on wetlands	Field visits and liaison with forest companies (including SFI certified companies) throughout Canada.	Documentation of existing practices and indicators of success in various forest types, wetlands and operating conditions.	Inclusion of successful field practices as recommended best management practices.	\$15 000	<u>In-kind</u> FPI - \$50 700 DUC - \$24 000 L-P - \$10 000 Resolute-\$2 500 CCSIC - \$2 500 JDI - \$3 000 Wey. - \$10 000
<b>Goal 3:</b> Ensure national representation of forest industry and government input on project outcomes.	Establish review committee.	Review committee members from across Canada including industry and government representatives.	Completion of final project document to the satisfaction of the review committee.	\$6 000	<u>In-kind</u> FPI - \$11 000 DUC - \$24 000 L-P - \$15 000 Resolute - \$2 500 CCSIC \$ 2 500 JDI - \$3 000 Wey. - \$10 000

<p><b><u>Goal 4:</u></b> Enhance the knowledge of the Canadian forest industry and governments on wetland classifications and processes.</p>	<p>Develop wetland definitions and classifications for application by field personnel throughout forested regions of Canada for inclusion in the field handbook.</p>	<p>Clear, concise overview of wetland information written for application with field based industry and government personnel.</p>	<p>Approval of wetland content in the final project document by the review committee.</p>	<p>\$13 000</p>	<p><u>In-kind</u> FPI - \$29 500 DUC - \$16 000 L-P- \$10 000 Resolute - \$2 500 CCSIC - \$2 500 JDI - \$3 000 NBDELG - \$3 000 Wey. - \$10 000</p>
<p><b><u>Goal 5:</u></b> Consolidate known impacts and mitigation practices of resource roads on wetlands.</p>	<p>Develop and compile information on resource road best management practices and associated wetland impacts.</p>	<p>Production of schematics, illustrations and implementation guidelines for effective BMP`s on resource roads.</p>	<p>Approval of BMP`s for inclusion in the final project document by the project review committee.</p>	<p>\$24 000</p>	<p><u>In-kind</u> FPI - \$51 500 DUC - \$60 000 L-P- \$10 000 Resolute - \$2 500 CCSIC - \$2 500 JDI - \$3 000 NBDELG - \$2 000 Wey. - \$10 000</p>
<p><b><u>Goal 6:</u></b> Enhance knowledge of forest industry on practices to mitigate impacts to wetlands.</p>	<p>Deliver training opportunities to the forest industry, including SFI certified companies.</p>	<p>Online, classroom and field based training opportunities delivered throughout Canada undertaken in collaboration with the Regional SFI Implementation Committees.</p>	<p>A minimum of 6 events and up to 120 participants at training events.</p>	<p>\$25 000</p>	<p><u>In-kind</u> FPI - \$45 200 DUC - \$48 000</p>
<p><b><u>Goal 7:</u></b> Report project outcomes.</p>	<p>Creation of a communication strategy to advertise project outcomes and partnerships.</p>	<p>Dissemination of project outcomes through press releases, newsletter articles, industry and trade magazine articles, SFI annual conference presentation.</p>	<p>Reporting completed.</p>	<p>\$12 000</p>	<p><u>In-kind</u> FPI - \$14 400 DUC - \$10 000</p>

## Project Timeline

<b>Project Goals</b>	<b>Actions</b>	<b>Action Start</b>	<b>Action End</b>
<b>Goal 1:</b> Further understanding of the interaction of wetlands and resource roads	Continue monitoring of existing research sites and where available, establish new research sites.	May 2014	will continue as needed
<b>Goal 2:</b> Fill knowledge gaps of existing practices and impacts of resource roads on wetlands	Field visits and liaison with forest companies (primarily SFI certified companies) throughout Canada.	May 2014	November 2014
<b>Goal 3:</b> Ensure national representation of forest industry and government input on project outcomes.	Establish review committee.	May 2014	July 2014
<b>Goal 4:</b> Enhance the knowledge of the Canadian forest industry and governments on wetland classifications and processes.	Develop wetland definitions and classifications for application to field personnel through Canada.	November 2014	June 2015
<b>Goal 5:</b> Consolidate known impacts and mitigation practices of resource roads on wetlands.	Develop information on resource road best management practices.	November 2014	December 2015
<b>Goal 6:</b> Enhance knowledge of forest industry on practices to mitigate impacts to wetlands.	Delivery training opportunities to the forest industry.	June 2014	December 2016
<b>Goal 7:</b> Report project outcomes.	Creation of a communication strategy to advertise project outcomes and partnerships.	January 2015	December 2016

Expenditure Type	Activity	SFI Grant Funds	In-Kind FPInnovations	In-Kind Ducks Unlimited	In-Kind Louisiana-Pacific	In-Kind Resolute FP	In-Kind Central Canada SIC	In – Kind J.D. Irving	In – Kind NBDELG	In-kind Weyerhaeuser	Total per expenditure category
Staff salary and benefits	Project mgmt.	0	33 300	0	0	0	0	0	0	0	\$33 300
Research activities, travel	Goal 1	0	132 700	195 000	0	0	0	0	0	0	\$327 700
Research activities, travel	Goal 2	15 000	50 700	24 000	10 000	2 500	2 500	3 000	0	10 000	\$117 700
Meetings, travel	Goal 3	6 000	11 000	24 000	15 000	2 500	2 500	3 000	0	10 000	\$74 000
Education outreach, travel	Goal 4	13 000	29 500	36 000	10 000	2 500	2 500	3 000	3 000	10 000	\$109 500
Research activities	Goal 5	24 000	51 500	24 000	10 000	2 500	2 500	3 000	2 000	10 000	\$129 500
Education outreach, travel	Goal 6	25 000	45 200	48 000	0	0	0	0	0	0	\$118 200
Communications	Goal 7	12 000	14 400	10 000	0	0	0	0	0	0	\$36 400
	<b>Total</b>	\$95 000	\$368 300	\$361,000	\$45 000	\$10 000	\$10 000	\$ 12 000	\$5 000	\$40 000	\$946 300

1 –In-kind contributions based on an average daily rate of \$1 000.

## Grant Application

### Managing Caribou Habitats Using New Science on Summer Nutrition in Forest Stands

#### Organizational Information

<b>Lead Organization Name and Address</b>	National Council for Air and Stream Improvement, Inc. P.O. Box 1036, Station B Montreal, QC H3B 3K5
<b>Name, phone and email for Project Director</b>	Kirsten Vice Vice President, Canadian Operations Phone: (514) 286-9111 E-mail: <a href="mailto:kvice@ncasi.org">kvice@ncasi.org</a>
<b>Lead Organizational Mission Statement (25 words or less)</b>	To create credible scientific research and technical information required to address the environmental information needs of the forest products industry in North America
<b>Annual Operating Budget</b>	\$980,000
<b>Two references (Name, Organization, email and phone) who can speak to the relevance and potential impact of the Project (these should not be the same as your Project partners)</b>	David Lindsay, President and CEO Forest Products Association of Canada <a href="mailto:dlindsay@fpac.ca">dlindsay@fpac.ca</a> 613-563-1441  Doug Routledge, Vice President Council of Forest Industries <a href="mailto:routledge@cofi.org">routledge@cofi.org</a> 250-564-5136

#### Project Overview

<b>Project Title:</b> Managing Caribou Habitats Using New Science on Summer Nutrition in Forest Stands
<b>Total Project Length:</b> 36 months
<b>Total Requested from SFI:</b> \$95,000
<b>Total Project Budget:</b> \$1,129,909 plus \$44,931 of in-kind support
<b>Brief Project Summary:</b> This project will focus on maintaining diverse, sustainable habitats for caribou, by evaluating importance of the summer nutritional forage base, identifying which habitats and attributes of habitats influence nutrition of caribou, identifying influences of forest operations on nutritional value of plant communities, and developing methods to inventory nutritional resources.
<b>Elements of SFI 2010-2014 Program addressed:</b> Objective 1. Forest Management Planning. Performance Measure 1.1; Indicators 1b, 1c, 1f, 5. Objective 4. Conservation of Biological Diversity. Performance Measure 4.1; Indicators 2-5. Objective 15. Forestry Research, Science, and Technology. Performance Measure 15.1; Indicators 1d, 1e. Performance Measure 15.3; Indicator 2 (marginally).

Project Partners

<b>Confirmed Project Partners</b>	<b>Primary Contact Name &amp; Title</b>	<b>Complete Contact Information</b>	<b>Summary of Qualifications and Experience</b>
National Council for Air and Stream Improvement Inc.	Kirsten Vice Vice President, Canadian Operations	P.O. Box 1036, Station B, Montreal, QC H3B 3K5 514-286-9111 kvice@ncasi.org	Kirsten Vice: 20 years of project management; Drs. John and Rachel Cook: 45 years (combined) of research on habitat and nutrition effects on elk, deer, and bighorn sheep
University of Northern British Columbia	Dr. Katherine Parker, Professor, Natural Resources and Environmental Studies Institute	3333 University Way Prince George, BC V2N 4Z9 250-960-5812 parker@unbc.ca	30 years research experience with bioenergetics/nutrition of large ungulates with 20 years focused on caribou in BC
Canfor, Inc.	Jim Stephenson Chief Forester, Alberta Operations	Postal Bag 100 Grande Prairie, AB T8V 3A3 780-538-7790 jim.stephenson@canfor.com	Professional forester for 35 years, mainly in western Canada

Project Details

Woodland caribou are declining and are designated as a species at risk by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). The widespread extent and severity of the declines are alarming and challenge forest management largely because 1) caribou require old growth forests particularly in winter, 2) lichens, a key winter food of caribou, are reduced in early seral stages after logging, and 3) roads supporting forestry operations are a conduit for humans and predators, ultimately increasing displacement and mortality of caribou. As such, general habitat guidelines of government agencies currently involve management and planning strategies to satisfy winter needs of caribou.

However, the total value of landscapes for caribou should reflect habitat requirements year-round. Worldwide literature increasingly identifies nutrition in summer as a vital link between productivity of large ungulates such as caribou and the habitat on which they depend. Key life processes—gestation during late pregnancy, juvenile growth, recovery of body fat stores after winter, and breeding—occur late spring through early autumn, and these impose large nutritional demands that, if unsatisfied, reduce reproductive performance, health and condition, and increase susceptibility to winter weather and predation. Examples of caribou studies demonstrating significant summer effects include Dale et al. (2008; *J. Mammalogy* 89:1130-1135), Cameron et al. (2005; *Arctic* 58:1-9), and Post and Klein (1999; *J. Wildl. Manage.* 63:335-345) in Alaska; Crête and Huot (1993; *Can. J. Zool.* 71:2291-2296) in Quebec, Schaefer and Mahoney (2013; *Can. J. Zool.* 91:767-774) in Newfoundland, and Post and Forchhammer (2008; *Phil. Trans. Royal Soc. B* 363:2369-2375) in Greenland, the latter of which related survival of caribou calves to influences of climate change on summer nutrition.

Caribou satisfy nutritional needs in summer by consuming a diversity of vascular plants, in addition to lichens. In many forest ecosystems, diversity and productivity of understory vegetation is often higher in early seral stages or in other stages following partial harvests. Our hypothesis is that the best landscapes year-round for supporting caribou are those that provide diverse plant communities under a variety of topo-edaphic conditions—early seral stages may contribute substantially to forage diversity for caribou in summer.

This hypothesis of diverse habitat mosaics is largely unevaluated, and carries risk. Too much early seral communities support high levels of moose and wolf populations, which are detrimental to caribou. Also, harvesting methods variably influence the nutritional value of understory communities for caribou, although reliable data on this topic are generally unavailable. Thus, the gaps in knowledge occur at two primary scales: data on harvesting methods, resultant plant communities, and nutritional value within stands; and data on appropriate mixes and juxtaposition of early and late seral communities that are suitable for caribou but are unsuitable for large populations of moose and wolves. Information on both is an essential prerequisite for reliable forest planning on behalf of caribou and for improving the coexistence of forestry and conservation of caribou herds. Finally, changing climate can influence plant phenology and productivity across the growing season, and detailed knowledge of environmental influences on nutritional value of summer forage for caribou is a key first-step in developing adaptive strategies that account for effects of climate change on caribou.

Our methodology includes a unique 3-pronged strategy of incorporating data from tamed caribou studies and data from wild caribou to improve understanding of the following:

- 1) Nutritional limitations potentially existing in wild caribou by measuring body fat and reproduction, which reflect their nutritional environment, in free-ranging caribou herds.
- 2) Relationships between caribou nutrition and plant community attributes in a variety of seral stages and ecological settings by measuring nutrition of tamed caribou in native habitats.
- 3) Relationships between habitat use of wild caribou in response to the distribution of nutritional resources and other habitat attributes across landscapes.

Our approach is similar to that which we have used for elk research in the western US, where our field data from tamed elk were used to build nutrition maps across large regions, were subsequently incorporated into habitat evaluation models recently adopted by federal land management agencies in the Pacific Northwest (<http://www.fs.fed.us/pnw/research/elk/index.shtml>), and have now replaced outdated models previously used. Data collected on caribou so far suggest important summer nutritional limitations in wild herds of mountain and boreal caribou in BC and Ontario ( $n \sim 260$  caribou) as do our stand-level nutrition studies conducted with tamed caribou in 2013 in northeastern BC.

With our 3-pronged strategy, we will identify the extent to which landscape planning should account for nutritional needs of caribou in summer, evaluate the role of forest management in caribou conservation efforts, and provide key data sets for forest planning. Our study area is in montane and boreal ecosystems in northeastern BC, from Prince George to Fort Nelson. It includes tenures of Canfor, an SFI Participant, and results will apply across western Canada on lands covered by SFI (see footnote b on p. 8 for a list of contributing forestry companies).

Over the next three years, our focus will be on sampling wild caribou (2014-16; item 1 above), sampling tamed caribou (2014 and 2015; item 2 above) and analyzing these data to provide the building blocks for investigating habitat use patterns of wild caribou and for developing forest planning models. The work on habitat use patterns and developing forest planning models (item 3 above) will begin in 3 years as the next phase of our overall program.

Finally, we intend to collaborate with researchers of the Foothills Research Institute who are engaged in caribou research with the University of Saskatchewan under a previously awarded SFI Conservation Grant, to ensure congruence between our vegetation sampling methods and theirs, with the intent in the next phase of our research program of 1) building nutrition maps in caribou areas of western Alberta, and 2) using their caribou telemetry data to extend studies of habitat use and forest planning model-development. We expect the overall effort will produce regional habitat evaluation methods and, eventually, forest planning models that will have implications for identifying and managing key caribou habitats regionally and nationally. Elements of the SFI Standard addressed by this project include:

Objective 1. Forest Management Planning. We request funding to identify key attributes of plant communities for meeting nutritional needs of caribou, to evaluate how forestry can be used to improve these attributes, and to provide building blocks required for nutrition-explicit models for forest planning across landscapes. For *Performance Measure 1.1*, Indicators include:

*1b. Periodic or ongoing forest inventory.* Our data sets will help identify which attributes of habitat are important for summer nutrition in montane and boreal settings and thus should be included in forest inventories to monitor their changes over time. For example, our data will identify which plant taxa are palatable and nutritious for caribou in summer and what biomass levels of these species are needed to support caribou at the stand level.

*1c. Land classification systems.* Nutritional ecologists are finding that cover type classification systems are insufficient for describing nutritional resources. We will couple systems based on potential natural vegetation—because these reflect contributions of soils and climate to plant phenology, composition, and chemistry— and seral stages to help describe value of nutritional resources and outcomes of forest management.

*1f. Up-to-date maps or a geographic information system.* Data on relationships between quality of nutritional resources and overstory canopy conditions/harvesting methods will provide the building blocks for mapping nutritional resources in a GIS. The building blocks will enable companies to construct maps for their areas of tenure—*these building blocks will be available for companies in western Canada at the end of this study.*

5. *Documentation of forest practices.* In our past work, influences of clearcut logging vs partial harvests variably influenced the quality of nutritional resources, depending on ecological context. Our data will help identify which is more effective and should help illustrate how planting, herbicide use, and other practices influence nutrition.

Objective 4. Conservation of Biological Diversity Including Forests with Exceptional Conservation Value. Participants in SFI are expected to protect imperiled species and their habitats and provide key information on strategies to do so.

*Performance Measure 4.1; Indicators 2-5. Program to protect threatened and endangered species and habitats/habitat attributes important for these species.* Our data will help identify areas that provide high-quality nutritional resources resulting from specific soils and vegetation. Such information will help companies avoid development in areas that support these high-quality resources and identify areas with potential to substantially improve nutrition after judicious active forestry. Our data thus will contribute to programs for assessment of cover types, age classes, and habitats on behalf of caribou.

Objective 15. Forestry Research, Science, and Technology. *Performance Measure 15.1; Indicators 1d. Wildlife management at stand- and landscape-levels.* Our research is intended to fill gaps about caribou habitat needs and thus should improve the ability of forest management to sustainably maintain high-quality habitats for caribou. For stand-level work, we will provide

equations that relate understory vegetation composition and abundance to caribou nutrition that companies can use to evaluate nutritional value of plant communities in their tenure. We will also provide guidelines describing the influences of different harvesting methods and silviculture on understory vegetation and nutritional value of plant communities. These will have application for forest inventory and monitoring, although these will be constrained to some degree reflecting the range in forest practices present across our study area.

*Performance Measure 15.3. Indicator 2.* Although our project is not a study of climate change, warming temperatures and increasing drought may lower summer nutrition by advancing phenology, changing composition, and reducing productivity of understory vegetation. Our data should provide inferences about the likely influences and interactions of climate change and forest management on understory vegetation and caribou nutrition.

<b>Project Goals</b>	<b>Actions</b>	<b>Tangible Outcomes</b>	<b>Measure Success</b>	<b>Grant Funds</b>	<b>In-Kind Funds</b>
Body condition and reproduction of wild caribou	Helicopter capture conducted by government contractors	Report and journal article	Measure condition on ~120 caribou in N. BC, 2014-15	0	
Identify superior and deficient habitats for caribou summer nutrition	Sample foraging by tamed caribou to measure their nutrition in habitats in N. BC	Results will be presented in PhD thesis and journal articles	Sample a total of 100-120 “macroplots” (caribou pens) in N. BC in 2014-15 ( <i>n</i> = 46 in 2013)	\$35,000 (2 years combined)	\$69,931
Identify habitat attributes that influence caribou nutrition and how forestry methods affect these attributes	Same as above, but with emphasis on sampling areas subjected to harvest operations in the past (retrospective strategy)	Prediction equations for caribou nutrition and guidelines of forest practices for influencing caribou nutrition (PhD thesis, journal articles, and technical reports)	From the same macroplots as above	\$35,000 (2 years combined)	
Develop algorithms for GIS maps of nutritional resources and habitat models for forest planning in N. BC and W. AB (the latter with Foothills Research Institute)	Equations from above in GIS models will drive map construction; these maps, with wild caribou habitat use data, will form basis for new forest planning models.	Note: algorithms will be produced in this study; regional mapping and forest planning modeling is planned for a future phase. Webcasts/work-sessions to assist applications for forest inventory, monitoring, and mapping.	Successful development of equations, algorithms, and guidelines.	\$25,000 (for development of the EGAs in year 3 of the project).	

## Project Timeline

All data from summer 2013 have been entered into computer spreadsheets, lab assays are currently being completed, and sampling of wild caribou will be conducted late February to early March 2014. The 2014-field season will begin in June after caribou birthing in May, and will continue through October, in 2014 and 2015. We will provide regular project updates to SFI and the NCASI membership, and final reports to SFI will be due in May 2017. Future schedules and plans for sampling wild caribou depend on objectives of collaborators, but we expect this work will continue beyond the end of this study.

	2014	2014	2014	2014	2015	2015	2015	2015	2016	2016	2017
Activity	Jan-Mar	Apr-May	Jun-Oct	Nov-Dec	Jan-Mar	Apr-May	Jun-Oct	Nov-Dec	Jan-Oct	Apr-Dec	Jan-May
<i>Tamed caribou studies</i>											
Caribou birthing/training		X				X					
Field sampling			X				X				
Vegetation sampling			X				X				
Nutrition lab assays	X			X	X			X	X		
Data entry/analysis				X	X			X	X	X	X
PhD thesis; final report											X
<i>Wild caribou studies</i>	X				X				X		
<i>Final report</i>											X

## Field sampling

Field sampling consists of 3 main parts. First, sampling of body fat and pregnancy of wild caribou and other health-condition metrics involves helicopter capture operations conducted by government biologists and contractors. We accompany researchers, and use ultrasound and body condition scores—state-of-the-art techniques to measure body condition—and use lab assays of blood to determine pregnancy of captured caribou. In addition to previous sampling in Ontario (190 caribou) and other areas in BC (18 caribou), we sampled 49 caribou in winter 2013 in montane and boreal habitats in northeastern BC, plan to capture 60 more in winter 2014, and anticipate capturing at least this number during each of the winters of 2015 and 2016. The areas of caribou capture generally overlap with areas where the tamed caribou are used.

Second, we sample the nutritional value of various plant communities using tamed, trained caribou. Detailed studies in the past illustrate that foraging by captive ungulates is similar to that of their wild counterparts, and captive animals have long been used for studies of foraging/nutrition. We construct pens of electric wire in stands of native vegetation, sample vegetation in these pens (see below), and release 4 caribou and their calves into the pens for three days. We use bite-count techniques to quantify how much of each plant species the caribou consume, determined via close observation of the animals. We also measure time spent feeding each 24-hr period, using automated activity recorders. We collect samples of plant species and plant parts consumed by the caribou and submit these for laboratory analyses to determine digestible energy (DE) and protein (DP) content of their diets, and to calculate intake rate of food, DE, and DP per minute of foraging and per 24-hr period.

Third, we sample the vegetation available to the caribou in the pens along four parallel transects systematically placed across the pens. Biomass of vegetation and lichens from 1 cm to 2 m above ground are clipped within two 2-m<sup>2</sup> circular plots per transect, sorted and bagged by species, oven-dried, and weighed to estimate amount of food in the pens. Canopy cover, basal area, tree density and composition, height of the overstory, and stand age are measured along these transects using standard forest inventory techniques. Slope, aspect, and slope position are also measured, and potential natural vegetation type and disturbance history are recorded. We collect these data in all pens in which caribou are used, and bolster our statistical power by sampling overstory and understory vegetation in additional stands where caribou are not used. We sampled 45 stands with caribou and an additional 34 stands without caribou in summer 2013.

Our sampling strategy, virtually impossible to implement with wild caribou, provides a rigorous evaluation of foraging/nutritional responses of the caribou to the vegetation available to them. Our primary variables of interest include DE and DP content of their diets and intake rates of these nutrients per minute and per day because these quantify what the caribou actually obtain from the forest stands. By using tamed caribou as a habitat assessment tool, we will identify relative preferences among plant taxa, habitats offering superior nutrition, and attributes of plant communities and forest management that account for variation in nutritional response. Our equations to predict nutritional responses based on plant community characteristics and equations relating understory forage characteristics to overstory, past forestry, and ecological conditions will provide a basis for predicting expected nutrition levels across landscapes. This approach was effective in developing forest planning models for elk in the US Pacific Northwest.

### Project Budget

Costs of the entire project for the upcoming 3 years, starting 1 April 2014, are \$1,174,840, of which about \$45,000 is in-kind support for vehicles and trailers. From SFI, we request \$95,000 for the 3 years, \$35,000 in 2014 and \$35,000 in 2015 to support field operations, and \$25,000 in 2016 for salaries of lead research staff. The project supports a PhD candidate, Kristin Denryter, at the University of Northern British Columbia, Natural Resources and Environmental Studies Institute, under the direction of Dr. Katherine Parker. Current funding, mainly from forest management companies, is about 80% of that needed for the project. Pending is a proposal to the BC Habitat Conservation Trust Foundation to meet about half the unfunded portion. Our request to SFI will provide most of the remainder of the unfunded portion. Funds from both sources are primarily needed to support field work, and failure to acquire either will require scaling-back the scope of data collection.

Field sampling with the tamed caribou is a large “operation”, requiring full-time attendance of Drs. J. Cook and R. Cook, the student, 4 technicians, and periodic assistance from Dr. Parker. In general, Parker, Denryter, and R. Cook will lead with analysis of data describing foraging responses of caribou to habitat conditions. J. and R. Cook will lead with developing algorithms to predict vegetation conditions as a function of overstory, seral stage, and ecological context and developing forestry guidelines on nutrition resources. J. and R. Cook also will lead with collecting body condition and reproduction data of wild caribou and analyzing these data. Funds are included for travel and hotels during the winter capture operations. However, the number and scheduling of future capture operations is controlled by the BC government, and current plans for future capture operations may change.

<b>Expenditure</b>	<b>SFI Grant Funds</b>	<b>Total Matching Funds</b>	<b>Source of Matching Funds*</b>	<b>In-Kind Contributions*</b>	<b>Source of In-Kind Contributions</b>	<b>Total per Expenditure Category</b>
<b>Staff Salary and Benefits</b>						
John Cook	\$15,000	\$412,177	NCASI, FP <sup>b</sup>			\$427,177
Rachel Cook	\$10,000	\$274,786	NCASI, FP <sup>b</sup>			\$284,786
Kristen Denryter (PhD student) <sup>a</sup>		\$95,000	NCASI, FP <sup>b</sup> , HCTF <sup>c</sup> , NSERC <sup>d</sup>			\$95,000
<b>Operating Costs</b>						
<b>Research Activities</b>						
Tamed caribou feed/care		\$61,796	NCASI, FP <sup>b</sup>			\$61,796
Field travel	\$35,000	\$37,300	NCASI, FP <sup>b</sup>	\$44,931 <sup>e</sup>	NCASI, FP <sup>b</sup>	\$117,231
Technicians (4/yr)	\$35,000	\$65,400	NCASI, FP <sup>b</sup>			\$100,400
Supplies & equipment		\$11,650	NCASI, FP <sup>b</sup>			\$11,650
Nutrition lab assays <sup>f</sup>		\$65,000	NCASI, FP <sup>b</sup> , HCTF <sup>c</sup>			\$65,000
Meetings		\$2,000	NCASI, FP <sup>b</sup>			\$2,000
Travel (meetings) <sup>g</sup>		\$6,800	NCASI, FP <sup>b</sup>			\$6,800
Education & Outreach						
Communications <sup>h</sup>		\$3,000	NCASI, FP <sup>b</sup>			\$3,000
<b>Total</b>	<b>\$95,000</b>	<b>\$1,034,909</b>		<b>\$44,931</b>		<b>\$1,174,840</b>

<sup>a</sup> Costs for PhD student includes stipend and University overhead of 20%. Total benefits for permanent staff are 40% of salary.

<sup>b</sup> FP = Forest products companies and trade associations, including Alberta Forest Products Association, Canfor, Domtar, Forest Products Association of Canada, Louisiana Pacific, Resolute, Tolko, and Weyerhaeuser.

<sup>c</sup> Habitat Conservation Trust Foundation of British Columbia, proposal submitted (pending).

<sup>d</sup> Grant for support from Natural Sciences and Engineering Research Council of Canada (NSERC); confirmed November 2013.

<sup>e</sup> Five-year amortization costs of 2 pickups and 2 trailers.

<sup>f</sup> Conducted by the Habitat Analysis Lab at Washington State University, Pullman, WA, a global leader in forage-nutrition assays.

<sup>g</sup> Travel to science meetings, research planning meetings, and attending PhD student meetings and thesis defense.

<sup>h</sup> Page and reprint costs for publication of results from the project.

**SFI Inc. Conservation & Community Partnerships Grant Program Request for Proposals  
Grant Application for 2014 Grant Projects**

**Organization Information**

Lead Organization Name and Address	The Nature Conservancy North Carolina Chapter 2807 Market St Wilmington, NC 28403
Name, phone and email for Project Director	Dan Ryan (910) 395-5000 <a href="mailto:dryan@tnc.org">dryan@tnc.org</a>
Lead Organizational Mission Statement (25 words or less)	The mission of The Nature Conservancy is to conserve the lands and waters on which all life depends.
Lead Organization Annual Operating Budget	\$5,000,000
Two references (Name, Organization, email and phone) who can speak to the relevance and potential impact of the Project (these should not be the same as your Project partners):	Janice Allen, NC Coastal Land Trust <a href="mailto:janice@coastallandtrust.org">janice@coastallandtrust.org</a> (252) 634-1927 Scott Pohlman, NC Department of Environment & Natural Resources <a href="mailto:Scott.Pohlman@ncdenr.gov">Scott.Pohlman@ncdenr.gov</a> (919) 707-8110

**Project Overview**

Project Title	Total Length of time for completion of project (in months, from commencement to final reporting)	Amount Requested from SFI	Total Project Budget (including matching funds and in-kind contributions)*	Brief Project Summary (50 words or less)	What element(s) of the SFI 2010-2014 Program are addressed by your Project? (Please cite the Standard Component(s))
Private Landowner Outreach in the Cape Fear Arch: Sustaining Working Forests	18 months	\$27,000	\$42,000	TNC and its partners have a renewed focus on private landowner outreach in areas surrounding existing priority conservation areas and SFI certified lands. The intent is to keep lands in privately-held working forests and where feasible and practical, advocate for longleaf pine restoration. The optimal outcome will be a mix of restoration, certification and working forest conservation easements.	<ul style="list-style-type: none"> <li>· Forest Productivity &amp; Health</li> <li>· Capacity Building</li> <li>· Protection of Biological Diversity</li> </ul>

Project Partners

Confirmed Project Partners (list organization name only)	Primary Contact Name & Title	Complete Contact Information (Email, Phone Number, Mailing Address)	Brief Summary of Individual's and Organizations Qualifications and Experience (150 words or less per partner)
The Nature Conservancy	Dan Ryan Program Director	<a href="mailto:dryan@tnc.org">dryan@tnc.org</a> (910) 395-5000 2807 Market St Wilmington, NC 28403	The Nature Conservancy (TNC), founded in 1951 and formally chartered in North Carolina in 1977, pursues non-confrontational, pragmatic, market-based solutions to conservation challenges. TNC works with local governments and timber management organizations in the southeast coastal plain of NC to protect the highest priority forest habitats through acquisition or conservation easements. One of the organization's principal strengths is its presence in the local landscapes. Dan Ryan has been with TNC since 2007 and has worked to develop and implement strategies to enhance the conservation values of southeastern North Carolina. By working locally, it has become clear that TNC's conservation goals cannot be met solely through land acquisition, but through influencing practices on privately held lands. This proposed project is a pilot for TNC in developing a private landowner strategy. Dan has a BS in Environmental Studies from UNC-Asheville and a MPA from UNC-Wilmington.
The National Wild Turkey Federation	Brian Zielinski Conservation Area Manager – Southeast and Mid-Atlantic Districts	<a href="mailto:bzielinski@nwtf.net">bzielinski@nwtf.net</a> (386) 740-7107 1326 Hazen Road DeLand FL, 32720	The National Wild Turkey Federation (NWTF), founded in 1973 and headquartered in Edgefield, S.C., is a nonprofit organization dedicated to the conservation of the wild turkey and the preservation of our hunting heritage. Through vital partnerships with Federal & State Agencies, along with NGO's and Corporate Industry, the NWTF has become the leader in upland wildlife conservation. To date, the NWTF has spent more than \$412 million to conserve over 17 million acres of public and private land habitat. Wild turkeys and hundreds of other species of upland wildlife have benefited from this improved habitat and

			scientifically based management. In addition, one of NWTF's greatest strengths is its grass-roots volunteers, which are now numbering nearly 250,000. Brian Zielinski has been with NWTF since 2005, and currently serves as the Conservation Area Manager for the Southeast and Mid-Atlantic Districts. He holds a B.A. degree in Environmental Science from the State University of New York at Plattsburgh, and a M.S. degree in Wildlife Science from Louisiana State University. Brian is a certified Wildlife Biologist through The Wildlife Society and a certified Technical Service Provider with the Natural Resources Conservation Service.
Resource Management Service	Tony Doster, Manager North Carolina Region	<a href="mailto:tdoster@resourcemgt.com">tdoster@resourcemgt.com</a> (910) 790-1074 ext.409 2704-C Exchange Drive Wilmington, NC 28405	Resource Management Service (RMS) is a forestry-centered company founded, owned and managed by forestry professionals throughout its 60-year existence. RMS is a SFI Program Participant and will act as a SFI Project Partner for this proposal. Tony Doster has been with RMS since 2006. He holds a B.S. degree in Forestry from North Carolina State University. Tony is a North Carolina Registered Forester and a Society of American Foresters Certified Forester.

Project Details

1. *Please provide an introductory narrative describing (a) the basic methodology, and (b) the intended impact of your project.*

The project location is situated in the six county region of southeastern North Carolina. A driving force in this area's conservation efforts is the Cape Fear Arch Conservation Collaboration, a partnership of organizations and individuals interested in protecting the region while balancing the needs of man and nature. Extensive spatial analysis and knowledge of the landscape continues to determine conservation priorities for the Cape Fear Arch. There is an emphasis on buffering and forming corridors between existing managed lands. It is apparent that this cannot be achieved solely through land acquisition; it will require the active participation of private forest landowners. The underlying goal of the project is to promote long-term forestry management and conservation on private lands, whether through managed working forests and certification programs or through conservation easements. This will be achieved by educating priority landowners and existing SFI-certified landowners on the benefits of forest management and the programs available to them that can help them achieve their objectives.

Partners in this project, TNC, the NWTF and RMS, have unique skillsets that will leverage the ability to complete this undertaking. TNC staff possesses a long history in the landscape and have been central in identifying spatial priorities, including private landholdings, for further outreach. NWTF personnel are trained and equipped to reach out to landowners and demonstrate the benefits of the variety of tools that are being advocated like forest

certification and working forest easements. NWTF field personnel are certified Technical Service Providers, so they can develop NRCS-based management plans that open the door to Farm Bill program money like the Environmental Quality Incentives Program (EQIP). They are also knowledgeable of state-specific programs managed by the North Carolina Forest Service, as well as certification programs like SFI and American Tree Farm System. Finally, NWTF staff are well-informed in working forest conservation easements and will act as intermediary between landowners and local land trusts. RMS, as a forestry company and SFI participant, will lend their expertise in identifying other current SFI-certified landowners in the area and supporting the other partners' understanding of the financial limitations the forestry landowners must balance when integrating conservation practices on their lands.

This is a pilot project for the partnership between TNC, NWTF and RMS in North Carolina. It is anticipated that this relationship will continue in two of the other formal conservation partnerships that exist in the state after this project is completed. Lessons learned from working with each other and best practices that were identified through the grant period will benefit and make future collaborations more efficient.

2. *Please explain how your project will illustrate or inform the role of SFI in one or more of the five conservation categories listed on the first page (Note that SFI may consider compelling projects that may fall outside these categories)*

Forest Health: The "Private Landowner Outreach in the Cape Fear Arch: Sustaining Working Forests" project will demonstrate the significance of forest health in supporting long-term financial gains and conservation values to private landowners. One of the primary strategies of this proposal is to provide guidance and technical assistance to forest landowners about working forest conservation easements.

Capacity Building: The central theme of the project is to develop and implement forest landowner outreach programs surrounding forest conservation practices.

Wildlife, Fish and Biodiversity: The project has many aims, but for partners like TNC and NWTF, the principal objective is to maintain private forest lands for the wildlife and fish habitat that they provide. Since the partners' best management practices for habitat management are so similar to those found in the SFI Standard Requirements, the outcome of this project will aim to protect, promote, illustrate, improve or restore key biodiversity, aquatic species, or wildlife habitat practices to meet SFI Standard requirements.

3. *What activities will you and your Project partners perform to promote the outcomes of your Project and SFI Involvement in the Project?*

TNC and NWTF are both active participants in the three conservation collaborations previously mentioned in North Carolina. The Cape Fear Arch will be the initial focus of the landowner partnership that this grant will support. It is anticipated that this partnership will expand to the Onslow Bight and Sandhills partnerships in 2015 and 2016. Therefore SFI involvement and this project's outcomes will be conveyed to two other landscapes and their priority landowners as well. In addition, TNC has a dynamic social media presence and traditional communications outlets like a quarterly newsletter that will feature this project and SFI's involvement. Moreover, NWTF has an experienced and well proven communications department that will work to highlight project accomplishments and Partner involvement with private landowners and volunteers across various social media including web-based press releases, state and local Chapter websites / Facebook pages, and e-blasts to volunteers within the priority landscapes.

4. *In the table below, please list the goals for your project. For each goal, please describe: the actions you will take to achieve your goal; the corresponding tangible outcomes; the means by which you will measure success in achieving each goal, and; the portion of the requested grant funds that would be used to achieve the goal.*

Project Goals	Actions	Tangible Outcomes	Measure Success	Grant Funds	In-Kind or Matching Funds
Identify priority privately-held tracts & SFI certified properties near focus areas	Complete GIS spatial exercise	Shapefile and tax record information on identified landowners	Dataset complete	\$2,000	-
Work with RMS to identify further SFI certified lands and understand financial realities of implementing conservation initiatives on private lands	Meet with RMS personnel & develop more refined understanding of landscape	Enhanced shapefile and better "sales pitch" to make to forest landowners	Second iteration of dataset and more effective talking points	-	\$1,000 (in-kind)
Instigate contact with priority landowners	Host Landowner Workshop	Targeted 100 landowners contacted, reciprocate communication	50% of those in attendance express interest in cost-share programs, certification and easement options (approximately 50 landowners)	\$3,000	\$2,000 (in-kind)
Develop relationship with priority landowners	Site visit with landowner	Landowner cognizant of cost-share programs, certification and easement options	20% of the 50 landowners schedule site visit (10 landowners)	\$7,000	-
Prepare management plan for priority landowner that emphasizes conservation of important habitat types on property as well as sustained forestry operations	Work with landowner to develop management plan	Management plan approved by landowner and schedule established for implementation	20% of the 50 landowners (10 landowners)	\$10,000	\$10,000 (matching funds)
Act as intermediary between landowner and local land trust to determine feasibility of working forest conservation easement	Establish communications between the two entities	Interested landowner in contact with appropriate land trust	20% of the 50 landowners (10 landowners)	\$2,500	-
Act as intermediary between landowner and SFI certification process	Establish communications between the two entities	Interested landowner in contact with appropriate land trust	20% of the 50 landowners (10 landowners)	\$2,500	-
Administer Grant Effectively	Report, invoice	Grantors satisfied with project	Administrative functions finalized	-	\$2,000 (in-kind)

Project Timeline

Please provide a timeline for completion of the project. Projects may range to a maximum of three years. Projects will commence at the time the Grant Agreement is signed, soon after notification of acceptance of your proposal. The timeline should indicate when you will deliver upon the goals and outcomes – project payments will be tied to attainment of project milestones and will be generally be made on a six-month payment schedule. SFI will receive and process invoices during a brief window each quarter (eg. in March, June, September and December). The specific timeline for each project will dictate the schedule of reports and payments.

As this RFP indicates grant awardees will be notified in April 2014, it is assumed that work on the project can begin in May 2014. It is anticipated that the spatial prioritization will continue from this period until July 2014. With the prioritization data in hand, NWTF staff will develop a roadmap for contacting the landowners and determining the most effective methods for engagement. Whether this is through direct mailing, workshops, using established contacts or a combination of all three, this phase of the project will be implemented from July through September 2014. Site visits will occur when the landowner is available, so conservatively this part of the project will last from October 2014 through January 2015. The creation of management plans and acting as an intermediary between local land trusts and the SFI certification process will last through June 2015. Including the completion of a final report, the project will conclude by August 2015.

Project Budget

Please fill out the table below to illustrate the entire Project budget. SFI Inc. will not award any funds for organization overhead costs, which include but are not limited to, office rent or maintenance, utilities, temporary hires, etc. While some portion of the grant may be used to offset staff salary and benefits, the focus should be on-the-ground activities.

<b>Expenditure</b>	<b>SFI Grant Funds</b>	<b>Total Matching Funds</b>	<b>Source of Matching Funds*</b>	<b>In-Kind Contributions*</b>	<b>Source of In-kind Contributions</b>	<b>Total per expenditure category</b>
<b>Staff Salary and Benefits</b> (please list budget amount individually per staff person)						
TNC Staff	\$2,000	-	-	\$2,000 (grant admin)	Operating Costs	\$4,000
NWTF Staff#1	\$15,500	\$4,500	TNC Private Fundraising	\$2,000 (landowner workshop coordination)	Operating Costs	\$22,000
NWTF Staff #2	\$8,500	\$4,500	TNC Private Fundraising	-	-	\$13,000
RMS Staff	-	-	-	\$1,000 (advisement)	Operating Costs	\$1,000
<b>Operating Costs</b>						
Meetings	\$500	\$500	TNC Private Fundraising	-	-	\$1,000
Travel	\$500	\$500	TNC Private Fundraising	-	-	\$1,000
<b>Total</b>	<b>\$27,000</b>	<b>\$10,000</b>		<b>\$5,000</b>		<b>\$42,000</b>

\*list sources and amounts of any matching funds or in-kind contributions for each project partner



13 Drurys Cove Road/13, rue Drurys Cove  
Lower Cove NB, E4E 4E4  
Tel: (506) 432-7575  
www.fundymodelforest.net

February 20, 2014

Sustainable Forestry Initiative Inc.  
900 17<sup>th</sup> St. NW, Suite 700  
Washington, DC 2006

Attention: Andrew De Vries – Vice President, Conservation and Indigenous Relations

Dear Mr De Vries:

Re: Hayward Brook Watershed Study: Medium-term (20-yr) impacts of Forest Practices to Biodiversity

The on behalf of the Fundy Model Forest, find attached our proposal for the SFI Conservation Fund entitled "Hayward Brook Watershed Study: Medium-term (20-yr) impacts of Forest Practices to Biodiversity".

Should you have any questions, please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'Nairn Hay'.

Nairn Hay, General Manager  
Fundy Model Forest

enc

Fundy Model Forest/ Forêt Modèle de Fundy  
"Our Forests, Our Communities, Our Future" "Nos  
forêts, nos communautés, notre avenir"

Lead Organization Name and Address	Fundy Model Forest
Name, phone and email for Project Director	Nairn Hay, General Manager – (506) 432-7575 - <a href="mailto:nairn@fundymodelforest.net">nairn@fundymodelforest.net</a>
Lead Organizational Mission Statement (25 words or less)	"Healthy communities within a working Acadian Forest managed using the principles of sustainable forest management."
Lead Organization Annual Operating Budget	\$150,000 (direct funding)
Two references (Name, Organization, email and phone) who can speak to the relevance and potential impact of the Project (these should not be the same as your Project partners):	Barry Tupper – FP Innovations - (902) 681-6882 – <a href="mailto:barry.tupper@fpinnovations.ca">barry.tupper@fpinnovations.ca</a> Dr. David MacLean – University of New Brunswick – (506) 458-7552 – <a href="mailto:macleand@unb.ca">macleand@unb.ca</a>

### Project Overview

Project Title	Total Length of time for completion of project (in months, from commencement to final reporting)	Amount Requested from SFI	Total Project Budget (including matching funds and in-kind contributions)*	Brief Project Summary (50 words or less)	What element(s) of the SFI 2010-2014 Program are addressed by your Project? (Please cite the Standard Component(s))
Hayward Brook Watershed Study: Medium-term (20-yr) impacts of Forest Practices to Biodiversity	24 months	\$42,015 over two years	\$144,930 over two years	In 1992, the FMF measured the impacts of forest practices on a suite of indicators in the Hayward Brook watershed. This project will revisit the original sites and plots to re-measure the terrestrial and aquatic indicators and the change over 20 years, which is approx. halfway between harvest rotations.	Objective 1 – Forest Management Planning Objective 3 – Protection and Maintenance of Water Resources Objective 4 – Conservation of Biological Diversity including Forests with Exceptional Conservation Value

### Project Partners

Confirmed Project Partners (list organization name only)	Primary Contact Name & Title	Complete Contact Information (Email, Phone Number, Mailing Address)	Brief Summary of Individuals and Organizations Qualifications and Experience (150 words or less per partner)
University of New Brunswick Saint John	Dr. Kate Frego	(506)-648-5566 Biology, UNB, 100 Tucker Park Road P.O. Box 5050 Saint John, New Brunswick, Canada E2L 4L5	Dr. Kate Frego is a professor and Director of Graduate Studies at UNBSJ. She joined the faculty at UNB Saint John in 1993. Dr. Frego is a plant ecologist with a special interest in primitive plants, including mosses and liverworts. Most of her current research, with her graduate and honors students, assesses human impact on plant communities.  Dr. Frego has a long history of research collaboration with forest sector partners. She is a member of the Board of Directors of the FMF and of the J.D. Irving Forest Resource Advisory Committee.

			She was awarded a prestigious 3M National Teaching Fellowship which recognizes educational leadership and excellence in the classroom.
University de Moncton	Dr. Alyre Chiasson	alyre.chiasson@u moncton.ca (506) 858-4030 Université de Moncton Campus de Moncton Pavillon Léopold- Taillon 18, avenue Antonine-Maillet Moncton, NB Canada E1A 3E9 Canada	Dr. Alyre Chiasson is a professor in the Biology Department at the Université de Moncton since 1987. Dr. Chiasson's research interests focus primarily on the use of biotic and abiotic indicators of freshwater aquatic health and restoration and mitigation measures. This spans a wide range from eutrophication assessment and control, use of constructed wetlands and more recently American eel biology and fish passage. He has worked extensively with brook trout in the past in a number of FMF sponsored projects. He is a member of the Board of Directors of the Fundy Model Forest and the Petitcodiac Watershed Alliance. In 2012 he received a distinguished Service Award from Science Atlantic for his contributions to the advancement science in the Atlantic Region.
J.D. Irving Ltd.	Greg Adams	<a href="mailto:adams.greg@jdirving.com">adams.greg@jdirving.com</a> 506-432-2844	Greg Adams is J.D. Irving's manager of Research & Development and Nurseries. He has led research in New Brunswick and Maine for JDI for over a decade, and represented the industrial partner throughout the Hayward Brook study..

### ProjectDetails

When the Fundy Model Forest (FMF) opened in 1992, there was recognition that understanding the effects of forest management on biodiversity, aquatic habitat and ecosystem health required longer term, multiple-impact forest -based research. To meet that need, study sites were established in two watersheds (Holmes and Hayward Brooks) for rigorous longitudinal cause-and-effect research. A general description of the study site and cutting blocks can be found in (Bourque and Pomeroy 2001).

Coordinated by the FMF, the study was designed as a controlled longitudinal Before-After-Control-Impact (BACI) experiment to investigate the impact of timber harvesting on a host of indicators: water quality, fish populations, vascular plant and bryophyte communities, bird and invertebrate populations. All indicators were measured simultaneously, pre and post-harvest of both the harvested stands (in-pact) and adjoining unharvested (control) areas, as designated in the 1992-1997 forest management plan. The research represented an interdisciplinary collaboration among scientists from the University of New Brunswick Fredericton, University of New Brunswick Saint John, University of Moncton, Department of Fisheries and Oceans, and Fundy National Park, and the land managers, J.D. Irving Ltd.

The pre-harvest measurements occurred in 1994, immediately preceding timber harvest. The acute and short term impacts) were monitored for the next five years as the area was managed (i.e. through site preparation, planting, etc.). The study focused on the effectiveness of the 30 and 60 m forested buffers in conserving riparian biodiversity and protecting water quality and fauna. Results were published in refereed scientific journals and reports to the forest sector, and were used to inform public policy for the management of New Brunswick's forests, e.g. Frego (1998), Roberts and Zhu (2002), Fenton et al. (2003), Roberts (2004), Fenton and Frego (2005).

The current proposal is to return to the original study sites to continue the long-term investigation into the impacts of forest practices on native biodiversity of the Acadian Forest 2014 (20 years post-harvest). This represents the mid-point between maturity and potential harvesting; the similarity to pre-harvest conditions will provide important information on the time scale of ecological recovery relative to rotation time. The study will be divided into two components: an investigation of the vascular and bryophyte communities, and investigation of stream temperature and habitat and abundance of brook trout (*Salvelinus fontinalis*). Both studies are extensions to the original projects that ran from 1993 to 1997. An important strength of this proposal is the l

involvement of the two original primary researchers in each case, which will ensure comparability of the data across the length of the study.

Our primary questions are: (1) Have the initially disturbed indicators (terrestrial and aquatic) recovered to their pre-harvest conditions? and (2) Do stands receiving different management treatments follow the same trajectories of change? This project will focus on the medium-term (20 yr) impact on forest floor plant communities and stability in the protection of aquatic habitat and fauna. While some indicators (e.g. water quality, some vascular plant species) quickly recovered after their immediate and acute responses to harvest, others (especially bryophyte community composition) changed dramatically, and had not returned to pre-harvest conditions at 5 yrs post-harvest. This round of re-measurement will provide important insight into the longer term impacts of forest practices to biodiversity (terrestrial and aquatic) and the performance of indicators over an extended period of years.

#### Project Details:

What do you want to do (description of project)?

Bryophyte and vascular plant component

Dr. Kate Frego And her team will document the medium-term impact of forest management on vascular plant and bryophyte communities 20 yrs post-harvest in the Acadian Forest, by re-sampling the communities. The permanent quadrats established and sampled in 1994 will be relocated, remarked, and re-sampled. The bryophytes, in particular, require microscopic identification in Dr. Frego's lab. Analysis of data will compare both the compositional status and statistical trends in recovery of plant diversity.

To accomplish this, a Field Technician will oversee the project, carry out field sampling, identify plant specimens and analyse the results. In the first year, the quadrats will be relocated and re-monumented. Collection of data and of samples for identification will be undertaken on a plot-by plot basis, through years 1 and 2. These data will be compared to (a) the compositional change since pre-harvest (have the communities returned to pre-harvest condition?), (b) the previous measurements post-harvest (is the trajectory of change approaching pre-harvest condition?), and (c) among treatments (have communities experiencing different management options followed the same trajectories?).

#### Aquatic component

This component will be run by Dr. Alyre Chiasson, U. de Moncton. Elements of the initial study will be replicated; water temperature, habitat assessment and fish species abundance measurements (fish species are principally brook trout and slimy scuplin (*Cottus cognatus*). Hobo pro water temperature loggers will be placed in stream at specific locations and compared to past data collected during the initial study as well as similar loggers to record ambient air temperatures. Tidbit sensors will be used to monitor air temperatures. Changes in habitat will be evaluated through counts of pools, runs and riffles as well as their dimensions. Brook trout abundance will be evaluated using electrofishing and (Zippin 1958) population estimates (total remove, non-lethal sampling). Loggers will record temperatures from early June to mid-September as in (Bourque and Pomeroy 2001).

How do you plan to do it?

Bryophyte and vascular plant component

Data will be collected from the grid of 159 permanent sample units (1.25-m<sup>2</sup> quadrats) that were established in 1994 at approximately 50-m intervals, as established throughout the 54-ha section of the Hayward Brook watershed. Regular spacing was used to facilitate relocation after harvest. Based on the degree of disturbance, quadrats were assigned to one of four management treatments, representing a gradient of increasing disturbance severity:

(a) buffer (n = 17 quadrats), riparian areas in which no anthropogenic disturbance occurred;

(b) uncut (n = 41), upland areas in which no anthropogenic disturbance occurred;

(c) indirectly disturbed (n = 38), where dominant trees were removed, but there was no further evidence of physical damage from machinery, and in which some remnant canopy was often left in the form of young trees of merchantable species; or

(d) directly disturbed (n = 77), where trees were removed and the forest floor was physically damaged during harvest, including machinery tracks, slash piles, and scarified areas. Herbicide was applied to 43 quadrats that received direct disturbance.

Plant species abundance, as well as microtopographic features, tree canopy, and all bare forest floor substrates, will be sampled using the same methodology as the first round. Bryophyte samples will be collected for microscopic identification in the UNB laboratory. Univariate and multivariate statistical analyses will be done in the second year, to determine changes (absolute and

as trajectories) in species composition and abundances relative to the pre-harvest condition (before-after), and among treatments (control-impact).

The results of the analyses will be reported directly to the land managers via UNB and the FMF, and papers will be submitted to peer-reviewed journals for publication. In addition, the results will be reported through presentations at scientific conferences and for the public.

#### Aquatic component

A total of five sites will be reevaluated; two 30 m buffer sites, two 60 m buffer sites and two control sites (study sites). The second control site was dropped later from the study as it ran dry in the summer but it will be revisited in this study or an alternate control will be sought if possible. Water temperature loggers will be placed at each study site, plus one extra site to cover the same sampling location as (Bourque and Pomeroy 2001). Tidbit air temperature loggers will be deployed in each sub basin to monitor air temperature (three sites). The frequency of pools runs and riffles will be recorded as in the past by counting the number of each habitat type within each study site until a minimal count of 20 is obtained for any habitat type. Length width and maximum depths of pools will be recorded. Fish were initially sampled by minnow traps at the lower, middle and top section of each study site. A non-overlapping section was electrofished in the middle. To reduce resource demand, electrofishing only will be conducted covering all areas previously sampled. At each site a 50 m section of stream will be selected. Barrier nets will be erected at both upstream and downstream ends and a minimum of 3 sweeps made. Fish will be identified, measured, adipose fin-clipped and released. Electrofishing results will be reported the total number of fish caught per 100 m<sup>2</sup>. Data will be compared to the historical values obtained during the initial study. Information will be interpreted based on recent concern stemming from global warming in addition to riparian zone size. A minimal two seasons of data will be required to account for inter-seasonal differences and maintain a statistically balanced design with the previous study.

#### Why do you want to do it?

##### Bryophyte and vascular plant component

Studies in forests around the world have shown acute and generally negative impacts of timber harvest on native biodiversity in the short term (1-5 yrs), but there are very few long-term studies done on the impact of forest management on biodiversity -- even fewer in the Acadian Forest. Existing longer-term studies are generally "snap-shots" comparing stands at different stages of regrowth, and cannot account for their initial (pre-harvest) differences. This study's BACI design and its duration give it unprecedented potential to inform the forest sector in the Acadian Forest and beyond. The second stage of the study will document the medium-term changes in the species abundance and breadth after sites have been left to develop over a 20 years, at approximately the mid-point between harvests.

#### Aquatic component

There are additional reasons for returning to these sites beyond an evaluation of current conditions as a progression from the past. Research into small streams and forestry interactions has seen a resurgence of interest because of the predicted effects of global warming and the large surface areas that are invested in riparian zone management (see: Malcolm Knapp Experimental Forest, H. J. Andrews Experimental Forest and (Cole and Newton 2013) (Kanno 2011, Kreutzweiser 2009)). It should be noted that neither stream water temperature nor brook trout abundance showed a clear relationship with treatments in the initial study. However, with increasing pressure on the forestry industry, it is important to know if current riparian zone management efforts are effective over the long term in buffering against climate change. As ground-fed cold-water streams, Hayward and Holmes brooks are particularly well suited to this study as they are such sites are seen as potential thermal refugia (Gomi, et al. 2006, Hakala, et al. 2000, Macdonald, et al. 2003, Moore, et al. 2005). Some of the hottest summers recorded have occurred over the past five years, the ability of buffer zones even with the surrounding grow-up to continue to offer the same protection as under cooler summers is unknown. This demonstrates the importance this study in evaluating of long-term effects under changing regimes.

#### Environmental Innovation

The primary objective of the project overall is to provide data and recommendations for the future forest practices in the province. The knowledge gained from the project will be applied directly to forest management through our industry partner, J.D. Irving.

#### Forest floor plant diversity

One important biodiversity knowledge gap is the longer term impact of forest management on bryophyte populations,, specifically over the duration of a stand rotation. Most of the existing studies use techniques that compare stands at different stages of recovery, but cannot control for their initial differences – which are now known to be spatially and temporally variable. By its BACI design, this longitudinal study is one of few to track responses of bryophyte and vascular plant communities relative to their pre-harvest composition, and to areas that did not experience harvest during the same time period.

The initial stage of the Hayward Brook study documented the short term impacts of forest management to a variety of indicators, relative to a pre-harvest baseline and among disturbance intensities. The results of the first study informed the forest practices of J.D. Irving Ltd around tree island retention and set the foundation for ongoing work a Black Brook to assess the impacts of forest practices. Its results influenced the way JDI manages the Acadian Forest: islands of living trees are left in harvest blocks, scarification techniques have been lightened, and previously unnoticed taxa such as bryophytes are considered during the development of forest policy. However, with the next harvest approx. 20 yrs away, it is critical to determine whether these measures are sufficient, or even effective, for maintaining forest floor plant diversity.

#### Aquatic component

The aquatic data collected during the initial project supported decisions for the management of watercourse buffers in the province of New Brunswick. Students will be recruited in early April and will commence work in May 2014. The students, the principal investigator (student) and field assistance will have to follow a course given by our Animal Care committee and well as an electrofishing course for certification. The principal students, potentially Masters or Honors will be required to conduct a literature review which can commence in the May. Sites will be flagged in late May to early June. Placement of water temperature loggers will follow the recommendations in (Jones and Allin 2010) Air temperature loggers will be put in place at the same time as water temperature loggers. Electrofishing (Smith Root LR24), will commence in June as previously described. Fish will be anesthetized with benzocaine if required prior to measurements and adipose fin clipping with sterilized scissors. Habitat measurement will be conducted in-between electrofishing. Data will be entered during rained-out days. Data analysis and write-up will occur in the fall and winter period.

#### Links to SFI's Principles:

The project was initiated as a result of questions about the of forest practices sustainability (protection of native biodiversity and watercourses) in New Brunswick. The initial work informed on the ground forest policies and management through the 1990's until the present. The current project links directly to SFI's Principles: Sustainable Forestry, Protection of Water Resources and Research.

The project will contribute directly to will meet the requirements for water and wildlife, fish and biodiversity categories.

Project Goals	Actions	Tangible Outcomes	Measure Success	Grant Funds	In-Kind or Matching Funds
The development of applied knowledge of forest management practices and their impact on aquatic and terrestrial indicators for application in Provincial and forest industry policies and procedures.	Collection of data and information on the presence and abundance of terrestrial and aquatic indicators 20 years post treatment in the Hayward Brook watershed.	Scientific data collected from terrestrial and aquatic plots establish 20 years ago in control and managed stands in the Hayward Brook watershed.  Recommendations for forest practices in the province of New Brunswick for the maintenance of native biodiversity during forest management.	New scientific data and analysis of aquatic and terrestrial data from Hayward Brook watershed.  New knowledge is implemented in Provincial and industry forest policies and practices.  New knowledge is disseminated through scientific papers, presentations, local media and meetings.	\$40,015 over 2 years.	\$91,640 over 2 years

ProjectTimeline

Terrestrial Study

2014 (44 weeks)

June - hiring of technician and summer students – training (technical and field)

July – relocation of sites and plot: partial re-monumenting

July to October – re-measurement of plots and collection of samples

November to February – sample analysis and identification

March – analysis and final report for 2014

2015 (52 weeks)

May - hiring of summer students – training (technical and field)

June to October – re-measurement of plots and collection of samples

November to January – sample analysis and identification

February - March – analysis and final report with recommendations

Aquatic study

2014

May – finalization of student hiring, Animal care course, electrofishing course, literature review started

June – flagging of sites, placement of data loggers, first electrofishing and habitat analysis

July - electrofishing of sites, habitat analysis, data entry

August - July - electrofishing of sites, habitat analysis, data entry

September-February – finalize data entry, statistical analysis, write-up (progress and assessment report for year 1)

ProjectBudget

Year 1

Expenditure	SFI Grant Funds	Total Matching Funds	Source of Matching Funds*	In-Kind Contributions*	Source of In-kind Contributions	Total per expenditure category
Staff Salary and Benefits Lab and Field Technician \$35,420 Students \$9,000 Project Management \$1,600 Phd supervision \$8,800	\$13,620	\$33,400	Gov NB One Job Pledge \$16,500 ISRDC \$7,500 NB Environmental Trust Fund \$9,400	Scientists Oversight .5 day/week for 44 weeks@\$200 \$8,800	UNBSJ U De M	\$55,820
Operating Costs						
Research Activities Truck rental, camp costs and materials \$11,250	\$5,625	\$5,625	NB Environmental Trust Fund			\$11,250
Meetings/Outreach	\$1,000			20 hours@\$50/hr \$1,000	FMF	\$2,000
Travel 1500 km @ .38/km \$1,140	\$1,140					\$1,140
Education & Outreach						
Communications						
Total \$68,210	\$21,360	\$39,025	\$33,400	\$9,800		\$70,210

\*list sources and amounts of any matching funds or in-kind contributions foreachprojectpartner

Year 2

Expenditure	SFI Grant Funds	Total Matching Funds	Source of Matching Funds*	In-Kind Contributions*	Source of In-kind Contributions	Total per expenditure category
Staff Salary and Benefits Lab and Field Technician \$43,680 Students \$8,250 Project Management \$1,600 Phd supervision \$8,800	\$12,890	\$40,640	Gov NB One Job Pledge \$19,500 ISRDC \$8,250 NB Environmental Trust Fund \$12,890	Scientists Oversight .5 day/week for 44 weeks@\$200 \$8,800	UNBSJ U De M	\$62,330
Operating Costs						
Research Activities Truck rental, camp costs and materials \$11,250	\$5,625	\$5,625	NB Environmental Trust Fund			\$11,250
Meetings	\$1,000			20 hours@\$50/hr \$1,000		\$2,000
Travel 1500 km @ .38/km \$1,140	\$1,140					\$1,140
Education & Outreach						
Communications						
Total \$74,720	\$20,655	\$46,265	\$40,640	\$9,800		\$76,720

\*list sources and amounts of any matching funds or in-kind contributions foreachprojectpartner

### Publications

- Bourque, C.-A. and Pomeroy, J.H. 2001 Effects of forest harvesting on summer stream temperatures in New Brunswick, Canada: an inter-catchment, multiple-year comparison. *Hydrology and Earth System Sciences Discussions*, 5 (4), 599-614.
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- Fenton, N.J., Sims, M.R. and Frego K.A. 2003. Changes in forest floor bryophyte (moss and liverwort) communities 4 years after forest harvest. *Can. J. Bot.* 81: 714–731.
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Zippin, C. 1958 The removal method of population estimation. The Journal of Wildlife Management, 82-90. 10.

Agreement to Public Communications

I, Nairn Hay, General Manager, as a representative of Fundy Model Forest (Organization Name) and a Partner in Hayward Brook Watershed Study: Medium-term (20-yr) impacts of Forest Practices to Biodiversity, hereby give the Sustainable Forestry Initiative® (SFI), Inc. permission to use my name, the organization name as written above, and any other information about the Project in public communications regarding the Project.

I understand that public communications include, but are not limited to:

- Press releases and announcements regarding the SFI® Inc. Conservation and Community Partnerships Grant Program.
- Public presentations, fact sheets, briefing notes and other communication materials that highlight successful Projects and the SFI Inc. Conservation and Community Partnerships Grant Program.
- Use of the Organization logo on the SFI Inc. website, on news releases or other materials.
- Other materials as appropriate.

SFI Inc. will not attribute quotes or opinions to my organization without permission.

With my signature below, I attest that, to the best of my knowledge, the information provided in this application is true and accurate, and I am authorized by Fundy Model Forest to sign this agreement.

Signed:



Name

General Manager

Title

Fundy Model Forest  
Organization

February 20, 2014

Date

February 4, 2014

To Whom It May Concern:

The purpose of this letter is to express strong support for the Fundy Model Forest's proposal: the Hayward Brook Watershed Study. As the Conservation Council of New Brunswick's Forest Campaign Director, I have worked in partnership with Fundy Model Forest on the Upper Miramichi Community Forest initiative as well as various other initiatives for almost a decade. Our organization has always been impressed with the Fundy Model Forest's research on the Acadian forest and its commitment to understanding the effects of forest management on forest biodiversity and forest ecosystem health.

Fundy Model Forest's proposed continuance of a long-term study of the impacts of timber harvesting on bryophytes will no doubt inform future forest management policy and provide rich data and groundbreaking results on the impacts of harvesting on forest biodiversity like Fundy Model Forest's previous forest research.

The project proposal identifies a leader in the field of research on bryophytes, Dr. Kate Frego, as carrying out the work. The research plan and data collection methodology section is also sound. This research project is of importance because of the too few long-term studies done on the impact of forest management on Acadian forest biodiversity and the fact that it is able to include pre-harvest differences and go beyond being a snapshot of stand comparisons at different regrowth stages.

The Conservation Council of New Brunswick was established 45 years ago with a mandate to raise awareness of and promote solutions to environmental problems in New Brunswick. Our forest conservation program endeavours to protect the health of the Acadian forest and promote ecologically sound forest management policies through research and public education. The Conservation Council strongly endorses the funding of Fundy Model Forest's proposal to show the short-term, mid-term and long-term impacts of forest harvesting on bryophytes as set out in their Hayward Brook watershed study proposal.

Sincerely,



Tracy Glynn

Forest Campaign Director

# Grant Application Template

## Organization Information

Lead Organization Name and Address	Arthur Temple College of Forestry and Agriculture Stephen F. Austin State University 419 E. College- SFASU campus Nacogdoches, TX 75962
Name, phone and email for Project Director	Dr. Daniel G. Scognamillo Phone: (936) 468-5993 Email: dgscognamillo@sfasu.edu
Lead Organizational Mission Statement (25 words or less)	SFASU is dedicated to excellence in teaching, research, scholarship, creative work, and service. Students engage in learner-centered environment and prepare for challenges of global community.
Lead Organization Annual Operating Budget	\$237.09 million (Stephen F. Austin State University)
Two references (Name, Organization, email and phone) who can speak to the relevance and potential impact of the Project (these should not be the same as your Project partners):	-Dr. Daniel Saenz. US Forest Service. dsaenz@fs.fed.us. (936)569-7981ext. 4006 -Dr. Cliff Shackelford . Texas Parks and Wildlife Department. Clifford.Shackelford@tgwd.texas.gov

## Project Overview

Project Title	Total Length of time for completion of project (in months, from commencement to final reporting)	Amount Requested from SFI	Total Project Budget (including matching funds and in-kind contributions)*	Brief Project Summary (50 words or less)	What element(s) of the SFI 2010-2014 Program are addressed by your Project? (Please cite the Standard Component(s))
Developing a management tool to assist companies in the promotion of harvesting regimes and the selection of properties that promote the conservation of biodiversity.	The total length of this study is 24 months.	\$70,268	\$54,000	This study addresses the potential irreversible negative impact on ecosystem processes and biodiversity that forest practices could have. Results will provide companies with tools to make decisions regarding the development and implementation of ecological networks and management plans based on production and conservation goals.	Because the goals of the project relate to both productivity and conservation, the following SFI 2010-2014 Standard Objectives are addressed by it: <u>Objective 1.</u> Forest Management Planning. <u>Objective 2.</u> Forest Productivity. <u>Objective 4.</u> Conservation of Biological Diversity including Forests with Exceptional Conservation Value. <u>Objective 7.</u> Efficient Use of Forest Resources.

Project Partners

Confirmed Project Partners (list organization name only)	Primary Contact Name & Title	Complete Contact Information (Email, Phone Number, Mailing Address)	Brief Summary of Individual's and Organizations Qualifications and Experience (150 words or less per partner)
The campbell Group, LLC d/b/a campbell Timberland Management, LLC, as authorized agent for Crown Pine Timber 1, L.P.	Don Dietz  Senior Wildlife Biologist (CWB)	ddietz@campbellgroup.com 936-829-6337 702 North Temple Diboll, TX 75941	Major national and international TIMO with nearly 3 million acres in the southern pine belt. Dietz has 35years' experience as a professional wildlife biologist. He worked for Temple-Inland Forest Products Corporation for 28 years and has been with the campbell Group for 7.

Project Details

A common perception of plantation forests is that they are ecological deserts that do not provide habitat for valued organisms. However, numerous studies in many countries have documented that plantation forests can provide habitat for a wide range of native forest plants, animals, and fungi (Parrotta et al. 1997; Oberhauser 1997; Humphrey et al. 2000; Bockerhoff et al. 2003; Barbaro et al. 2005; carnus et al. 2006). Thus, there is abundant evidence that plantation forests themselves can be valuable as habitat for wildlife communities. It is this same evidence that encourages researchers and forest managers to continue searching for silvicultural and timber practices to promote biodiversity in plantation forests. One topic that requires special attention is the transitional zone between plantations and the surrounding areas, known as ecotone. These ecotones create an 'edge effect' that could result in different conditions from the ones found in the core of the forest (plantation and native forest), which have the potential to alter biodiversity. Thus, understanding how different configurations of plantation forests and their edges affect biodiversity is critical for the development of sustainable management practices that take into consideration wildlife habitat and biodiversity.

Several ongoing studies are focusing on different aspects of this challenge, specifically looking at edge effect (Pryke and Samways 2012). We recognize the challenges of developing practices for the sustainable use and conservation of natural resources, and the need to train professionals prepared to carry out that vision. For that reason, we propose the study of edge effect in pine plantations with the main purpose of developing a management tool to assist companies in the promotion of harvesting regimes and the selection of properties that promote the conservation of biodiversity.

This study will explore the feasibility of implementing ecological networks (Pryke and Samways 2012), a novel approach in conservation of biodiversity that seeks to mitigate the adverse effects of plantation forests in general, and pine plantations in particular.

a. Basic methodology.

1. During the initial stage of the study we will compile available data related to land cover and use in the region surrounding campbell Group properties. Most data files will be collected from Texas Ecological Systems Classification Project developed by the Texas Parks and Wildlife Department. Data files will be organized in a geographic information system (GIS) in ArcGIS 10.1 (Esri 2013) to facilitate identification of key forest patches and spatial analysis.
2. Spatial analysis will be conducted using software Fragstats 4.0 (McGarigal et al. 2012) and focus on describing patch and landscape metrics believed to be relevant to the conservation of biodiversity such as habitat type, patch area and shape, inter-patch distance, connectivity, and patch diversity.
3. Spatial analysis will allow us to identify patches that could become part of corridor. These identified patches will be classified based on habitat characteristics and connectivity, which will help in the selection process for the identification of a potential ecological network.
4. Once patches to be part of a potential ecological network have been identified, we will conduct field sampling to determine biodiversity and probability of detection for different species. We will use trail

cameras as the sampling technique to record biodiversity of meso and large mammals ranging in size from gray and fox squirrels to coyotes and bobcats. Detection probabilities will be estimated using software Presence 4.1 (Proteus-USGS).

5. Finally, patches part of an ecological network will be categorized based on species diversity and probability of detection for different species. Thus, we will identify keystone patches in that network, and secondary patches (based on biodiversity values and patch metrics), which will allow for the development of specific management plans for each situation.

b. Intended impact of study.

1. This study will provide a habitat model that will allow timber companies and wildlife managers to understand the effects and implications of land cover and forest plantations on the creation of ecological networks related to wildlife species diversity and conservation.
2. We anticipate that an important impact of this study will be the opportunity for companies to access a planning tool for the selection/management of land for production based on more inclusive criteria, i.e. addressing the impact land/property selection and management on the creation of ecological networks.
3. If companies select land for production from a regional perspective, based on the spatial arrangement and characteristics of surrounding habitat patches and the creation of ecological networks, industrial forest plantations could reduce potential negative impacts on biodiversity and other ecosystem processes.
4. Results from this study will provide companies a decision tool for land selection at a regional/ecosystem scale, which is necessary for the promotion of SFI Standards such as: developing forestry practices that do not disrupt ecosystem processes (Standard 1), promoting forest productivity and health (Standard 2), protecting water resources by including streams and riparian forests as part of the ecological network (Standard 3), protection of biodiversity by including patches with high diversity in the network (Standards 4 and 6), and giving spatial continuity to forested areas (Standard 5).

#### Bibliography

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- Pryke J. and M. Samways (2012) Conservation management of complex natural forest and plantation edge effects. *Landscape Ecology* 27: 73-85.

Project Goals	Actions	Tangible Outcomes	Measure Success	Grant Funds	In-Kind or Matching Funds
Identify an ecological network in forest plantation surrounding area.	Identification and mapping of plantations and surrounding areas using a GIS	Current research indicates that, even though forest practices and monoculture have a negative impact on biodiversity at a local scale (stands), the effect can be reduced if forest practices are designed and implemented considering the spatial arrangement of pine stands in the landscape. This study will provide the first comprehensive approach to the understanding of this issue in East Texas and Louisiana. This mapping activity also represents baseline information critical for the development of conservation actions that include guidelines for the forest industry on how to manage different stands to minimize ecological impact based on stand location in the landscape.	These actions will be considered successful if maps identifying potential target habitat patches have been developed. As a result of these actions we will provide maps showing location of forest plantations and location of habitat patches in the surrounding areas classified based on patch metrics relevant to the conservation of biodiversity.	\$39,168	\$54,000
	Identification and mapping of edges and potential wildlife corridors based on land cover vegetation and spatial arrangement of habitat patches.	This activity focuses on the identification of habitat patches and forest practices that increase conservation value. Companies will increase conservation value by managing their properties in ways which maximize the presence of corridors and minimize the negative effects that edges could have.	These actions will be considered successful if maps identifying potential corridors have been developed. As a result of these actions we will provide maps showing location of forest plantations and potential corridors classified based on biodiversity and patch metrics relevant to the conservation of biodiversity.		
	Estimation of diversity and frequency of detection of mammalian species in edges and corridors.	After corridors and edges have been identified, field surveys will be conducted to estimate mammalian diversity in those areas. Results from this activity analyzed in conjunction with habitat patch arrangement at the landscape level, will allow companies to identify critical habitat patches on their properties that can function as corridors for wildlife movement and other ecosystem processes.	These actions will be considered successful if data collected allows for indices of biodiversity and species detection probability estimation.	\$28,100	

Project Timeline

Year 1 (Aug 2014- July 2015) (X indicates expected date for measurement of progress and success for each activity)

Activity	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July
Compile land cover data												
Patch identification and spatial analysis												X
Biodiversity sampling (trail cameras)												
Analysis diversity data and patch classification												

Year 2 (Aug 2015-July 2016) (X indicates expected date for measurement of progress and success for each activity)

Activity	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July
Patch identification and spatial analysis						X						
Biodiversity sampling (trail cameras)	X							X				
Analysis diversity data and patch classification	X							X				
Final report preparation												X

Project Budget

Expenditure	SF Grant Funds	Total Matching Funds	Source of Matching Funds*	In-Kind Contributions*	Source of In-kind Contributions	Total per expenditure category
<b>Staff Salary and Benefits</b> (please list budget amount individually per staff person)	\$48,168 (Graduate student, \$39,168 + field technician, \$9 000)			\$3,500 (Participation in study)	Stephen F. Austin State University	\$51,668
<b>Operating Costs</b>						
Research Activities - 10 trail cameras @ \$550 ea. - 20 memory cards @ \$40. - 10 locks @ \$30 ea. - 10 camera security boxes @ \$50 ea.	\$7,100			\$45,000 (GIS lab use, 450 hours @ \$100/hr.)  \$5,500	Stephen F. Austin State University  USDA (cameras already purchased)	\$57,600
Meetings	\$1 000					\$1,000
Travel	\$12/000					\$12,000
Education & Outreach	\$1000					\$1000
Communications	\$1000					\$1000
<b>Total</b>	<b>\$70/268</b>			<b>\$54 000</b>		<b>\$124/268</b>

\*list sources and amounts of any matching funds or in-kind contributions for each project partner

## SFI Inc. Conservation & Community Partnerships Grant Program Request for Proposals

### Grant Application Template

#### Organization Information

Lead Organization Name and Address	Communities for Healthy Forests, Inc. P.O. Box 400, Roseburg, Oregon 97470 <a href="http://www.communitiesforhealthyforests.org/">http://www.communitiesforhealthyforests.org/</a>
Name, phone and email for Project Director	Javier Goirigolzarri P.O. Box 400, Roseburg, Oregon 97470. Phone 541-957-9001. Email: <a href="mailto:RMS@rosenet.net">RMS@rosenet.net</a> .
Lead Organizational Mission Statement (25 words or less)	CHF exists to explain the benefits of applying the best scientifically supported prescriptions for restoring health to overgrown forests and to rehabilitate damaged forests promptly
Lead Organization Annual Operating Budget	\$145,000
Two references (Name, Organization, email and phone) who can speak to the relevance and potential impact of the Project (these should not be the same as your Project partners):	Doug Robertson, Douglas County Commissioner, <a href="mailto:deb@co.douglas.or.us">deb@co.douglas.or.us</a> . Phone 541 440 4201 Ron Yockim, Attorney, <a href="mailto:ryockim@yockimlaw.com">ryockim@yockimlaw.com</a> . Phone 541 957 5900

#### Project Overview

Project Title	Total Length of time for completion of project (in months, from commencement to final reporting)	Amount Requested from SFI	Total Project Budget (including matching funds and in-kind contributions)*	Brief Project Summary (50 words or less)	What element(s) of the SFI 2010-2014 Program are addressed by your Project? (Please cite the Standard Component(s))
Douglas Complex Fires Public Education Project	36 Months	\$15,000.00	\$35,000.00	Project will pay for materials, technical support, and logistics needed to transport and demonstrate to community leaders, school students, landowners, the public and media representatives to learn about the reforestation needs following catastrophic wildfire, to replant native trees, and to monitor the forest recovery over a three year period.	1)Forest Health to include education on restoration & regeneration of forests destroyed by intense wildfire 2)Benefits of returning forests to a healthy, productive condition for wildlife habitat, watersheds, clean air and other healthy ecosystem services 3)Prompt reforestation for successful reestablishment of a productive forest for sustainable timber harvest

**Project Partners**

Confirmed Project Partners (list organization name only)	Primary Contact Name & Title	Complete Contact Information (Email, Phone Number, Mailing Address)	Brief Summary of Individual's and Organizations Qualifications and Experience (150 words or less per partner)
Communities for Healthy Forests, Inc.	Javier Goirigolzarri, Senior Forestry Advisor	<a href="mailto:RMS@rosenet.net">RMS@rosenet.net</a> P. O. Box 400 Roseburg, OR 97470 541-957-9001	<b>CHF</b> is a 501(c)3 Educational Non-profit in existence for 10 years. In those years high quality materials, websites, position papers have been developed & engaged in countless conferences, meetings & collaborative efforts across multiple states. The website <a href="http://www.communitiesforhealthyforests.org/">http://www.communitiesforhealthyforests.org/</a> has many of these details. Additionally, CHF has successfully collaborated with area schools. Over the last 4 years dozens of science students have been trained to gather & present post-fire recovery & restoration data, an ongoing project.
Plum Creek	Eric Gehrke, SW Oregon Lands Manager	<a href="mailto:eric.gehrke@plumcreek.com">eric.gehrke@plumcreek.com</a> 63459 Olive Barber Rd, Coos Bay, OR 97420 (541) 269-5540	<b>Plum Creek</b> has a strong history of financial support for and employee involvement with communities, watersheds & youth within their operating areas. Examples include: Supporting the Coquille (Oregon) School District's plans to build a new 49-foot bridge with a \$5,000 grant and engineering expertise from Plum Creek. "The current bridge does not meet load capacity requirements," says Coquille School District Grant Manager Dan Cumberland. "The upgraded bridge's load capacity will permit us to move construction equipment across the creek to develop the property for sports activities." With a \$5,000 contribution and advise from Senior Forest Engineer Mark Nauman the new bridge has become a reality.
Swanson Group	Jim Dudley, VP Resources	<a href="mailto:jim.dudley@swansongroup.biz">jim.dudley@swansongroup.biz</a> 2635 Old Hwy. 99 South Roseburg, Oregon 97470	Support for Clark Fork Coalition's (CFC) "Volunteer River Corps" to protect clean water and restore stream health through a variety of year-round activities. A \$1,000 grant from the Plum Creek Foundation will help keep the Corps outfitted with equipment and gear and will support its efforts to connect the community to its watershed.  Since its founding in 1951, <b>Swanson Group</b> has been firmly committed to maintaining sound environmental practices. We have always believed in taking care of the land and pursuing environmentally sound operating practices. In this regard, our employees are held accountable to ensure that we comply

			<p>with all laws, regulations and other regulatory requirements governing sustainable forestry, water quality, fish &amp; wildlife habitat, pollution and waste. Since it's inception, the Swanson family has strongly supported and adhered to the Oregon Forest Practices Act (OFPA) regulating activities on private and state timberlands. Swanson Group's finished product lines are produced primarily from trees grown and harvested in Oregon under the guidelines of the OFPA. In 2009 Swanson received a fiber sourcing certification from SFI. A statement taken from the corporate website states: <i>"When it comes to renewability and sustainability no building material even comes close to wood products from America's well managed forests. When you live, work, and recreate in the forest you have a vested interest in the maintenance and protection of the resource. Swanson Group fully embraces this responsibility and is committed to always be a steward of the forest."</i></p>
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**Project Details Douglas Complex Fires Public Education Project**

**NARRATIVE:**

During the 2013 fire season, nearly 50,000 acres of mixed ownership forestland was burned by the Douglas Complex Fire. The area is mix of Federal BLM O&C, large industrial and small non-industrial ownership in a checkerboard pattern. The original intent of the O&C lands was to be managed primarily for economic goals & funding for county government. But in the last 25 years, a dramatic shift in Federal land management policy brought on by legislated, executive branch and litigated actions have created drastically disparate goals and outcomes of management. The result today after an extremely damaging wildfire has some private landowners aggressively salvaging dead timber, repairing damage & replanting thousands of acres and the adjacent Federal land agency engaged in months, perhaps years, of NEPA analysis. In the middle are the small family landowners who lack the knowledge & resources to undertake the needed cleanup & reforestation efforts required to establish a productive forest with all of the benefits a healthy forest provides.

To help inform the public and the policy makers, Communities for Healthy Forests, Inc., a 501(c)3 non-profit proposes to undertake this project. With key partners, CHF will engage the local community, which was under threat of evacuation for weeks, and local schools in the reforestation and restoration effort on selected areas. In conjunction with the actual planting effort, the needed training and information of why we need to act promptly to restore these affected lands will be shared with participants. This information will be repeated in several tours of the area for the public and the media, highlighting actions being taken by SFI member companies & others adhering to sustainability standards such as the Oregon Forest Practices Act, Best Management Practices guidelines and the Tree Farm System.

**FOREST HEALTH:** We propose to provide the guidance, connecting the benefits of healthy forests, managed sustainably for the benefit of clean air, clean water, wildlife habitat & carbon sequestration & storage. This project is in a key watershed, providing clean drinking & irrigation water to a significant area of Douglas County, Oregon. We will also show the first-hand results of what catastrophic wildfires can do in an unmanaged landscape, threatening entire

communities & if we do not act, will result in conditions that pose a greater threat for future fires. The issues resulting from an unhealthy as opposed to a healthy forest environment can have long term and adverse impacts on water quality, fish and wildlife habitat and ultimately the success and survival of forest dependent industries and communities like those in our area.

Project Goals	Actions	Tangible Outcomes	Measure Success	Grant Funds	In-Kind or Matching Funds
Community engagement and public and landowner education on restoration of forest lands destroyed by catastrophic wildfire	With engagement of the community and school groups, field trips will be organized and taken into burned forest lands. Students and community members will be given the opportunity to plant seedlings to establish the new forest, reminiscent of the Tillamook Burn era. SFI standards will be key in informing the purposes of actions.	Public will better understand restoration efforts taken on forest lands destroyed by fire and actions being taken to restore forests to a productive state while restoring a healthy forest ecology for clean watersheds, wildlife, clean air, and carbon sequestration. The students' & public's active participation in the replanting effort, even at the small scale, will invest them in the value of productive, sustainable forest management. Small, non-industrial landowners in the area will further be recipients of the information, prompting the inactive landowners into taking protective and restorative actions.	Professional foresters will oversee the initial restoration efforts and will measure the effectiveness of tree planting and successful regeneration over a three year period to demonstrate the success of restoration by active human efforts. The public will be informed of activities & progress through media & other informational avenues.	\$15,000	\$20,000

**Project Timeline**

April 2014: Initiation of 1<sup>st</sup> Year tree planting event(s) & establishment of long term monitoring photo points  
 May – October 2014: Hosted field trips to areas affected by the Douglas Complex Fire  
 October – December 2014: Monitoring of plantings & recovery

January-March 2015: Planning for tree planting event(s)  
 April 2015: 2<sup>nd</sup> year tree planting event(s)  
 May – October 2015: Hosted field trips to areas affected by the Douglas Complex Fire  
 October – December 2015: Monitoring of plantings & recovery

January-March 2016: Planning for tree planting event(s)  
 April 2016: 2<sup>nd</sup> year tree planting event(s)

May – October 2016: Hosted field trips to areas affected by the Douglas Complex Fire  
 October – December 2016: Monitoring of plantings & recovery

January-March 2017: Finalize reporting & results to funders & partners

**Project Budget**

<b>Expenditure</b>	<b>SFI Grant Funds</b>	<b>Total Matching Funds</b>	<b>Source of Matching Funds*</b>	<b>In-Kind Contributions*</b>	<b>Source of In-kind Contributions</b>	<b>Total per expenditure category</b>
<b>Staff Salary and Benefits</b> (please list budget amount individually per staff person)	Executive Director-\$2000 Project Mgr-\$2000	\$4000	CHF Operating Funds	\$5000	CHF	\$13000
<b>Operating Costs</b>	\$4000	\$4000		\$5000		\$13000
Materials & Supplies	\$2000	0				\$2000
Meetings	\$500	\$500	CHF Operating Funds			\$1000
Travel	\$1000	\$1000	CHF Operating Funds			\$2000
Education & Outreach	\$5000	\$2500	CHF Operating Funds	\$2500 \$2500	Plum Creek Swanson Group	\$12500
Communications	\$2500	\$1000	CHF Operating Funds	\$1000	CHF	\$4500
<b>Total</b>	<b>\$15,000</b>	<b>\$9,000</b>		<b>\$11,000</b>		<b>\$35,000</b>

\*list sources and amounts of any matching funds or in-kind contributions for each project partner

## Agreement to Public Communications

*As part of the Grant Application, the Lead Organization must complete and sign this page.*

*All identified organizations and partners involved in the Project must also agree to authorize SFI Inc. to publicize the Project and to use their names, images, logos and information about the Project in such publicity. All Organizations listed in the application will be required to sign an agreement to this effect and submit it with the application. If additional Organizations join the Project after an application is accepted by SFI Inc., they will also be required to sign the agreement. You can access an additional copy of this agreement for your Project Partners here:*



Agreement to Public  
Communications.doc

I, **\_\_Javier Goirigolzarri, CF, Senior Forestry Advisor\_\_** (Name, Title), as a representative of **Communities for Healthy Forests, Inc.** (Organization Name) and a Partner in **\_\_Douglas Complex Fires Public Education Project \_\_** (Name of Project), hereby give the Sustainable Forestry Initiative® (SFI), Inc. permission to use my name, the organization name as written above, and any other information about the Project in public communications regarding the Project.

I understand that public communications include, but are not limited to:

- Press releases and announcements regarding the SFI® Inc. Conservation and Community Partnerships Grant Program.
- Public presentations, fact sheets, briefing notes and other communication materials that highlight successful Projects and the SFI Inc. Conservation and Community Partnerships Grant Program.
- Use of the Organization logo on the SFI Inc. website, on news releases or other materials.
- Other materials as appropriate.

SFI Inc. will not attribute quotes or opinions to my organization without permission.

With my signature below, I attest that, to the best of my knowledge, the information provided in this application is true and accurate, and I am authorized by **\_\_Communities for Healthy Forests, Inc.\_\_** (Organization Name) to sign this agreement.

Signed:

\_\_\_\_\_  
Name

Senior Forestry Advisor  
Title

Communities for Healthy Forests, Inc.  
Organization

\_\_February 20, 2014  
Date

**SFI Inc. Conservation & Community Partnerships Grant Program Request for Proposals  
Directions and Grant Application for 2014 Grant Projects**

Lead Organization Name and Address	Nuu-chah-nulth/WCVI Aquatic Management Society #3 – 4310 Tenth Avenue, Port Alberni, BC, V9Y 4X4
Name, phone and email for Project Director	Conor MacKenzie 1(250)266-6225, conor@westcoastaquatic.ca
Lead Organizational Mission Statement (25 words or less)	Aquatic resources are being managed by people working together for the benefit of current and future generations of aquatic resources, people and communities.
Lead Organization Annual Operating Budget	\$112,000
Proof of tax-exempt Status: Society number and Charitable business number with Canada Revenue Agency	Society # S44428 Charitable Business # 85604-5331-RR0001
Two references (Name, Organization, email and phone) who can speak to the relevance and potential impact of the Project (these should not be the same as your Project partners):	<ol style="list-style-type: none"> <li>1. Roland Doering, BC Timber Sales, Roland.Doering@gov.bc.ca (250) 286-9344</li> <li>2. Margaret Wright, DFO Resource Restoration Margaret.Wright@dfompo.gc.ca (250) 754-0355</li> </ol>

Project Overview

Project Title	Total Length of time for completion of project (in months, from commencement to final reporting)	Amount Requested from SFI	Total Project Budget (including matching funds and in-kind contributions)*	Brief Project Summary (50 words or less)	What element(s) of the SFI 2010-2014 Program are addressed by your Project? (Please cite the Standard Component(s))
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Fish habitat, aboriginal capacity building, and carbon sequestration opportunities within Marine Log Handling Tenures.	36	\$207,000	\$273,250	This project will research a restoration strategy that uses unutilized portions of marine log handling tenures to simultaneously restore impacted aquatic species habitat, build capacity and create economic opportunities for aboriginal people, and sequester carbon. It builds on successful pilot research, evaluating the potential for coastwide expansion by testing two study sites.	This project supports elements of Wildlife, Fish, and Biodiversity, Carbon and Bioenergy, and Capacity Building.
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Project Partners

Confirmed Project Partners (list organization name only)	Primary Contact Name & Title	Complete Contact Information (Email, Phone Number, Mailing Address)	Brief Summary of Individual's and Organizations Qualifications and Experience (150 words or less per partner)
Island Timberlands	Morgan Kennah RPF.	<a href="mailto:MKennah@islandtimberlands.com">MKennah@islandtimberlands.com</a> (250) 468-6830 1420 East Island Highway, Nanoose Bay, BC, V9P 9A3	Island Timberlands owns and manages over 250,000 ha of forest land across the coast of British Columbia. As a Program Participant with SFI, we have a sincere interest in supporting research opportunities that can demonstrate forestry is a sustainable business over time and from all perspectives. The company manages multiple marine

			tenures across the BC coast; these tenures are a critical element to our business model. Morgan Kennah is responsible for Island Timberlands' certification under SFI and community affairs.
MC Wright & Associates	Mike Wright – Project Manager, Senior Biologist	<a href="mailto:mike.wright@mcwrightonline.com">mike.wright@mcwrightonline.com</a> (250) 753-1055 2231 Neil Dr. Nanaimo, BC V9R 6T5	Mike Wright is the owner and manager of M.C, Wright and Associates Ltd. with 32 years of Fisheries-related experience in British Columbia. After starting out in fisheries research for DFO, he began his own Nanaimo-based biological consulting company in 1988. MC Wright and Associates specializes in aquatic habitat restoration and compensation and has undertaken the design and construction of a number of diverse habitat restoration projects on Vancouver Island and the sunshine coast including experimental kelp propagation at an impacted log dump site near Sayward, BC.
Aquatrust Research and Education Society	Larry Johnson, Managing Director	<a href="mailto:Aquatrust.seafood@gmail.com">Aquatrust.seafood@gmail.com</a> 250-735-4333 PO Box 1263 Port Alberni, BC V9Y 7M1	Larry Johnson is the Land and Resource Manager of the Huu-ay-aht First Nation and Managing Director of Aquatrust Research and Education Society. Aquatrust is a First Nations non-profit society specializing in restoring, researching, developing and building capacity related to aquatic resources. Aquatrust has extensive experience in shellfish aquaculture and in supporting First Nations and their companies, such as the Nuu-chah-nulth Seafood Development Corporation.

Project Details

1.

Forestry in coastal areas is highly dependent on the use of nearshore marine space for log handling. Concerns about the risks of log handling impacts on biodiversity, aquatic species, and carbon sequestration have resulted in pressure to find effective means of mitigating and restoring impacted areas. However, it is a challenge to engage in these activities while forestry

operations are on-going due to safety and other concerns. This project represents an innovative partnership-based approach to address this key aspect of coastal forestry operations.

Background research for this project found that with increased efficiencies and improved log handling techniques, the area of marine space used for log handling can be significantly decreased. In many cases, the spatial use within marine log handling tenures can be reduced by up to 90%. This potential decrease in footprint allows for a recovery of impacted areas outside the active bullpen and booming grounds within the forestry tenures. This also creates an opportunity to restore areas of impacted benthic marine habitat within marine forestry tenures that were historically damaged by log handling activities. Restoration activities can include kelp propagation, restoring kelp beds which sequester carbon and provide complex habitat structure for fish and other aquatic species. The possibility of sustainable kelp harvesting and mariculture in these areas also provides for economic opportunities (i.e. nursery stock for other restoration projects and kelp for food, pharmaceuticals, cosmetics, and bioenergy). Research into the viability of restoring damaged benthic habitat in active and inactive log handling tenures is currently underway at one location on Northeastern Vancouver Island. Preliminary restoration successes at this site have indicated the potential for a larger scale application; at other sites, however, further research is required to confirm that these techniques are applicable in areas with varying site conditions throughout coastal areas.

This project will develop and monitor three kelp and benthic restoration plots within each of two different log handling tenures to assess the results at different sites with varying conditions such as depths, currents, and water chemistry profiles. The feasibility of sustainably harvesting and selling propagated marine plants adjacent to habitat restoration plots within the unutilized portion of marine tenures, will also be explored. In addition, the potential of depositing restored habitat of this nature into a habitat (mitigation) bank will also be considered, as will the potential of utilizing the work as carbon offsetting.

2.

This project will support the SFI in Wildlife, Fish and Biodiversity. The project will research the potential to restore key habitats utilized by a wide variety of aquatic species that have been historically impacted by log handling practices. It will in turn also explore restoration of biodiversity to marine tenures in which biodiversity has been limited due to the formation and consequent legacy of fiber matts in the benthic zone.

The project will also support the SFI in Capacity Building. Research into restoration and the development of marine plant mariculture within un-utilized portions of marine log handling tenures enhances capacity of the aboriginal community (our organization is half Aboriginal and our partner, Aquatrust is an Aboriginal organization) to assess and manage natural and cultural resources. The knowledge and skills they gain will be essential to utilizing these techniques in other parts of the coast. Finally, the project supports the SFI priority in exploring carbon and bioenergy research by looking at the potential of growing marine plants to sequester carbon.

3.

The partners in this project will jointly and separately promote this project by presenting it in public venues, including the SFI Annual Conference and other venues identified by SFI Inc., Nuu-chah-nulth Council of Hawaii (Chiefs) Forums, Salish Sea Ecosystem Conference, and other venues we identify. We will also create a page dedicated to this project on our popular website and provide regular social media updates as well as print media updates as to the purpose and progress and outcomes of the project. We will also provide the West Coast Aquatic Management Board (with its four levels of governments and ten aquatic stakeholder representatives) with information and updates on the project and its outcomes, which, if successful, would provide valuable information and opportunities for future restoration projects within marine forestry tenure sites in coastal areas. This would promote both the SFI and the forest industry as a whole and ultimately contribute favorably to the industry's social license to operate in coastal areas.

Project Goals	Actions	Tangible Outcomes	Measure Success	Grant Funds	In-Kind or Matching Funds
1. Research viability of kelp propagation as a means of marine habitat restoration techniques within log handling tenures	Within 2 different marine log handling tenures, develop 2, 10x10m research plots on which to grow two different species of Kelp. A 3 <sup>rd</sup> plot will be developed outside the tenure footprint as a control	<ul style="list-style-type: none"> <li>Restoration of 400m<sup>2</sup> damaged and destroyed benthic habitat</li> <li>Increase bio-diversity within footprint of 3 log handling tenures</li> <li>Report outlining best possible prescription for further restoration activities for marine tenures in BC, Alaska and Washington</li> </ul>	Success will be measured by: <ul style="list-style-type: none"> <li>determining if different kelp species can be artificially propagated within varying types of marine log handling tenures and the applicability to large-scale restoration of BC coastal log handling facilities</li> </ul>	\$202,000	\$70,250
2. Research viability of sustainable marine plant harvesting within log handling tenures	Within the 3 different tenures, develop mid-water kelp propagation lines on which	<ul style="list-style-type: none"> <li>Report outlining the potential for the use of inactive log handling tenures to be</li> </ul>	<ul style="list-style-type: none"> <li>Determining if marine plant mariculture can be successfully undertaken and a commercially viable portion</li> </ul>	\$15,000	\$7,000

	to grow various species of kelp. Identify the potential market value for a sustainably harvested portion of the kelp. The feasibility of producing kelp for sale will be determined.	used for sustainable marine plant harvesting <ul style="list-style-type: none"> <li>• Economic development opportunities for partner first nations</li> </ul>	can be sustainably harvested within the inactive portion of marine log handling tenures		
3. Research potential to contribute restored habitat to Habitat Bank (Habitat Mitigation)	Research the opportunities to contribute restored habitat within a habitat impact mitigation system through conversations with DFO staff and other relevant parties.	<ul style="list-style-type: none"> <li>• Create 400m<sup>2</sup> of restored benthic habitat that could be used for mitigation purposes.</li> <li>• Write a short report on the potential opportunity related to habitat mitigation.</li> </ul>	<ul style="list-style-type: none"> <li>• The successful creation of 400m<sup>2</sup> of restored benthic habitat</li> <li>• Determining if the restored habitat would qualify as a deposit into a habitat bank.</li> </ul>	\$3,000	\$3,000
4. Research potential to utilize marine plant growth for carbon sequestration and offsetting.	Research (literature search) the carbon-sequestration capacity of the kelp species propagated at the sites and talk to carbon offsetting program personnel.	<ul style="list-style-type: none"> <li>• Create 400m<sup>2</sup> of marine plant habitat that will contribute to carbon sequestration</li> <li>• Short report outlining the value of restoring marine kelp habitats as a means of global carbon sequestration</li> </ul>	<ul style="list-style-type: none"> <li>• The successful creation of 400m<sup>2</sup> of restored marine plant habitat which will sequester a certain amount of carbon</li> <li>• Identify the amount of carbon sequestration made possible through the plot and species propagated.</li> </ul>	\$3,000	\$2,000

5. Communicate Results	Presentations, media, reports.	<ul style="list-style-type: none"> <li>• 5 presentations</li> <li>• Webpage</li> <li>• Regular media updates</li> <li>• 1 report</li> </ul>	<ul style="list-style-type: none"> <li>• Project 'picked up' and featured by media outlets</li> <li>• Positive response and interest resulting from presentations</li> </ul>	\$4,000	\$6,000
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### Project Timeline

Project Milestones	Goal Delivery	Completion Date
Planning, Site Selection and Authorization	1 & 2	June 1, 2014
Construction of Research Plots and Initial Communications	1 & 2, 5	August 30, 2014
Monitoring and Communications Updates	1 & 2, 5	September 1, 2017
Research and reporting	3& 4	October 1, 2017
Project Reporting, Communications	1, 2, 3, 4 & 5	October 31, 2017

### Project Budget

Expenditure	SFI Grant Funds	Total Matching Funds	Source of Matching Funds*	In-Kind Contributions*	Source of In-kind Contributions	Total per expenditure category
<b>Staff Salary and Benefits</b> (please list budget amount individually per staff person)	\$67,200 Four Research Team Members @ \$40/hr.			\$20,000 – Team members @ \$40/hr. \$20,000 Proj Mngt and Administration @ \$40/hr.	Aquatic Management Society; Aquatrust Research and Education Society	\$107,200
<b>Operating Costs</b>						
Research Activities (materials, construction, seed, diving, data, analyses, research, reporting, etc.)	\$144,800	\$4,000	Island Timberlands	\$31,250	Aquatic Management Society	\$180,050
Partnership coordination	\$1,000			\$1,000	Island Timberlands	\$4,000

(meetings with and between partners)				\$1000 \$1000	Aquatrust Aquatic Management Society	
Travel	\$10,000			\$1,000	Island Timberlands	\$11,000
Education & Outreach	\$2,000	\$2,000	Aquatrust Research and Education Society	\$2,000 \$2,000	Island Timberlands Aquatic Management Society	\$8,000
Communications	\$2,000			\$2,000 \$1,000	Island Timberlands; Aquatrust Research and Education Society	\$5,000
<b>Total</b>	<b>\$227,000</b>	<b>\$6,000</b>		<b>\$82,250</b>		<b>\$315,250</b>

\*list sources and amounts of any matching funds or in-kind contributions for each project partner

SFI Conservation Grant Application\_2014

Organization Information

Lead Organization Name and Address	University of Tennessee Natural Resource Policy Center Department of Forestry, Wildlife and Fisheries 274 Ellington Plant Sciences Bldg. Knoxville, TN 37996-4563
Project Director	Donald G. Hodges, Ph.D., CF James R. Cox Professor of Forest Economics Director, Natural Resource Policy Center 865-974-2706 <a href="mailto:dhodges2@utk.edu">dhodges2@utk.edu</a>
Lead Organizational Mission Statement	To enhance policy making relative to the sustainable management of natural resources in Tennessee and the Southeast region. To advance the science and sustainable management of natural resources to promote their health, utilization, and appreciation in Tennessee, the region and beyond through programs in teaching, research and extension.
Lead Organization Annual Operating Budget	UTK: ~\$2 billion <a href="http://controller.tennessee.edu/pdf/TreasurerReport2013-web.pdf">http://controller.tennessee.edu/pdf/TreasurerReport2013-web.pdf</a> FWF: ~\$4 million (excluding grants & contracts)
References	Kevin Hoyt, Ph.D., CF, RF Director, Forest Resources Research and Education Center University of Tennessee, Institute of Agriculture 865-483-3571 <a href="mailto:khoyt@utk.edu">khoyt@utk.edu</a>  Alex Wyss Director of Conservation Programs, The Nature Conservancy – East Tennessee Office 865-546-5001 <a href="mailto:awyss@tnc.org">awyss@tnc.org</a>

## Project Overview

Project Title	Total Length of time for completion of project (months)	Amount Requested from SFI	Total Project Budget (including matching funds and in-kind contribs.)	Brief Project Summary	What elements of SFI 2010-2014 Program are addressed by your Project? (Please cite the Standard Component)
Tennessee Natural Capital (TennNatCap)	18			<p>This project will establish functional methods for quantifying and valuing ecosystem services, for primarily five regulatory and voluntary markets including fiber, watershed services, carbon sequestration, biodiversity, and recreation, through open-source, geo-imagery, field-collected data, and geo-spatial analysis data-mining. Additionally it will determine the feasibility of developing technology-based tools and/or practices for maintaining and delivering this information cost-effectively.</p>	<p><b>Objective 1</b> – Forest Management Planning, Performance Measure 1.1 <b>Objective 3</b> – Protection and Maintenance of Water Resources, Performance Measure 3.2 <b>Objective 4</b> – Conservation of Biological Diversity, Performance Measures 4.1 and 4.2 <b>Objective 5</b> – Management of Visual Quality and Recreational Benefits, Performance Measures 5.1 and 5.4 <b>Objective 6</b> – Protection of Special Sites, Performance Measure 6.1 <b>Objective 8</b> – Landowner Outreach, Performance Measure 8.1 <b>Objective 11</b> – Promote Conservation of Biological Diversity, Biodiversity Hotspots, and High-Biodiversity Wilderness Areas, Performance Measure 11.1 <b>Objective 15</b> – Forestry Research, Science, and Technology, Performance Measures 15.1, 15.2, and 15.3 <b>Objective 18</b> – Public Land Management Responsibilities, Performance Measures 18.1 and 18.2</p>

## Project Partners

Project Partners	Primary Contact	Complete Contact Information	Brief Summary of Qualifications and Experience
ecoReata	D. Stuart Hale, CF	<a href="mailto:stuart@ecoreata.com">stuart@ecoreata.com</a> 276-698-5175 483 Valley St NE Abingdon VA 24210	Stuart Hale is a natural resources and forestland management professional with over 10 years of experience. His emphasis, and that of ecoReata, is ecosystem services and markets, GIS and geo-spatial data analysis, and sustainable forest management. He has worked providing these services on various private and public land bases, including management of 153,000+ acres of private Appalachian hardwoods and multiple projects with the US Forest Service, Bureau of Land Management, and Bureau of Indian Affairs. Stuart is a SAF Certified Forester and active in the professional community as a member of the Forest Guild, Tennessee Forestry Association, Virginia Forestry Association, and recently serving as 2013 Chair of the Southwest Virginia Chapter of Society of American Foresters. He has a BS and MS from the University of Tennessee – Knoxville with concentrations in Forest Resources Management and Forest Economics and Policy, respectively.
Tennessee SFI Implementation Committee	Thomas Kain, RF CF	<a href="mailto:Thomas.Kain@domtar.com">Thomas.Kain@domtar.com</a> 423-392-2789 Domtar 100 Clinchfield St Kingsport, TN 37760	The TN SFI SIC is comprised of industry foresters, consulting foresters, family forest landowners, and University of Tennessee faculty/staff. The committee provides leadership in promoting best management practices to improve forest management and sustainable forestry in Tennessee.

## Project Details

1. Increasing demands on ecosystem services and more widely recognized values of natural capital and assets, along with growing ecosystem markets (both regulatory and voluntary), require that all natural resource values be incorporated in management and policy decision making. Rural communities and small landowners, however, rarely have the necessary resources to properly value these ecosystems services and apply this information to sound management decision making. This project will establish a methodology for quantifying and valuing ecosystem services using open-source, geo-imagery, field-collected data, and geo-spatial analysis data-mining techniques. Additionally it will determine the feasibility of developing a web-based decision support framework that can be used by forest managers and landowners to assess specific forested properties. The project results will serve rural communities and businesses as a decision making tool in addition to accounting for and demonstrating overall natural capital and ecosystem values, thereby enriching local economies and ecosystem and human health. Furthermore, the project will demonstrate methods of how certified sustainable forests and multiple-use management cooperate with governmental and private goals to provide the greatest values to landowners and the public.

The final product of the project will be a web-based system to assess a range of ecosystem services and markets on hardwood forests in the southern Appalachians, as well as the potential value of these services under various management alternatives. The results will allow managers and landowners a cost-effective method to assess their management options with minimal data collection, and identify potential markets or those services requiring additional information and management.

The site at which the data needed to develop the web-based model will be collected is the University of Tennessee Forest Resources AgResearch and Education Center in Oak Ridge, Tennessee. This property is comprised of 2,260 acres, 250 of which are designated as the UT Arboretum. The property is certified as an American Tree Farm, with its most recent recertification occurring in 2012. The property consists predominantly of mixed mesophytic hardwoods, and is used for a wide range of research projects related to forestry and wildlife, as well as a number of other topics. In addition to the research and education focus, the property is managed as a working forest, with active timber and wildlife management programs and serves as an important recreational site for residents of Oak Ridge and surrounding communities. The combined landscape, vegetative, ecosystem services, and market data collected at this site will be used to identify, value, and model critical management variables, such as covertime, slope position, biomass, and others. This will then allow for predictive models to be used in management valuation and decision-making on other comparable landscapes at local and regional levels.

2. This project will address several of the SFI conservation categories, with particular emphasis on *Forest Health*. It is designed specifically to, in the words of SFI, “examine the intersection between healthy, managed forests and public benefits, including clean air and water, wildlife habitat, and other ecosystem functions.” Furthermore, the project will intersect *Carbon and Bioenergy* by helping landowners participate in carbon sequestration markets; *Capacity Building* by providing outreach and enabling forest conservation practices; and *Wildlife, Fish, and Biodiversity* through habitat and ecological landscape analysis and valuing biodiversity markets and potential.

3. A significant resultant portion of this project will be promoting the research in ways to engage public and corporate involvement. This will include web presences, social media, topical posts, organizational and academic presentations, and direct landowner engagement, all including SEO, keyword, and media optimization strategies. This outreach will be achieved through an active public relations and marketing campaign, but also through direct liaisons, training, and web interfaces tapping and maximizing information technologies. Furthermore, one intended product from the research results is a decision tool for landowners and managers for analyzing ecosystem markets. A unique component of the project is the ‘for-profit’ partnership, necessitating that outcomes include original products that are relatable and carried into the public/private marketplace.

## 4.

Project Goals	Actions	Tangible Outcomes	Measure Success	Grants Funds	In-Kind or Matching Funds
Build geo-spatial database for project area	<ul style="list-style-type: none"> <li>Forest inventory of project area including timber and carbon resources</li> <li>Geomorphologic analysis</li> <li>Gather open-source data relevant to land-based natural capital</li> </ul>	Combined geo-spatial database	All relevant variables collected and accessible for analysis	\$19,222	\$8,798
Compile and value local ecosystem markets	<ul style="list-style-type: none"> <li>Research and market analysis of existing and potential ecosystem markets</li> <li>Establish price estimates</li> </ul>	List of local and regional ecosystem markets along with price estimates	Comprehensive resource relevant to market and land management decision making	\$8,456	\$11,617
Analyze combination of geospatial database and local ecosystem markets to determine suitable model for land-based project viability	<ul style="list-style-type: none"> <li>Apply statistical methods for determining relational factors of ecosystem services and landscape variables necessary for market scalability.</li> </ul>	Functional model for ecosystem markets engagement.	Demonstration and comparison of model to other landscape scenarios.	\$6,456	\$8,617
Provide and promote functional model	<ul style="list-style-type: none"> <li>Provide services for landscape analysis and ecosystem market suitability analysis.</li> </ul>	List of services and methods for application.	Services marketed	\$11,017	\$9,617

**Project Timeline**

Collect open source landscape data	Develop and design inventory protocol and procedures	Map project area through analysis of current aerial imagery	Website/content development and initial promotion	Perform forest inventory	Conduct landscape spatial analysis	Ecosystem markets analysis	Content promotion	Inventory analysis	Model development	Project analysis and promotion
May	October	November	January	February	October					
2014						2015				

**Project Budget**<sup>1,2</sup>

Expenditure	SFI Grant Funds	Total Matching Funds	Source of Matching Funds	Total per expenditure category
Staff Salary and Benefits (individually per staff)	<p><b>UT</b>                      \$7,500 (1 semester of Graduate Research Assistant stipend); \$1,068 (8% benefits and graduate health insurance); \$5,199 for 1 semester of tuition                      \$886 (Forest Resources REC Director salary); \$364 (Benefits—41.1%)</p> <p><b>ecoReata</b>                      \$11,520 salary; \$2,304 (20% benefits) over 18 months</p>	\$12,323 (10% of Hodges Salary); \$3,857 (PI Benefits—31.3%)	UT	\$45,021

Operating Costs		\$6,472 (40% Indirect costs on match); \$15,997 (Cost shared F&A on request, 40% of request)	UT	\$22,469
Research Activities	<b>UT</b> \$7,500—On-site assessment of carbon storage in forests			\$7,500
Meetings	<b>ecoReata</b> \$1,500—costs of hosting a meeting on results/use			\$1,500
Travel	<b>UT</b> \$1,500—Travel for a conference to report the findings (registration, transportation, hotel)  <b>ecoReata</b> (travel from Abingdon, VA) Research Site: \$2000 for 20 trips at \$100/trip Research meetings in Knoxville \$600 for 6 trips at \$100/trip Conference to present results: \$750			\$4,850
Education & Outreach	<b>UT</b> \$1,500 for publications			\$1,500
Communications	<b>ecoReata</b> \$1000 - Expenses for developing and maintaining website for project and storage capacity and data			\$1,000
<b>Total</b>	<b>\$45,191</b>	<b>\$38,649</b>		<b>\$83,840</b>

<sup>1</sup> In-kind contribution columns omitted as Not Applicable

<sup>2</sup> Bulk of funds are for salary due to nature of project

**SFI Inc. Conservation & Community Partnerships Grant Program Request for Proposals  
Directions and Grant Application for 2014 Grant Projects**

**Organization Information**

Lead Organization Name and Address	Babine Watershed Monitoring Trust, PO box 4274, Smithers, B.C., Canada V0J 2N0
Name, phone and email for Project Director	Karen Price (PhD), Technical Advisor, 1-250-846-5359 <a href="mailto:pricedau@telus.net">pricedau@telus.net</a>
Lead Organizational Mission Statement (25 words or less)	Prioritises, funds and communicates impartial monitoring of publicly-defined, government-approved land-use plans in the Babine Watershed to help ensure that plan strategies achieve plan objectives.
Lead Organization Annual Operating Budget	\$35,000
Two references (Name, Organization, email and phone) who can speak to the relevance and potential impact of the Project (these should not be the same as your Project partners):	<ol style="list-style-type: none"> <li>Glen Buhr, RPF, Stewardship Officer, Skeena Stikine Resource District. 1-250-847-6308 <a href="mailto:glen.buhr@gov.bc.ca">glen.buhr@gov.bc.ca</a></li> <li>Matt Sakals, PhD, PGeo, Research Geomorphologist, Ministry of Forests, Lands and Natural Resource Operations, 1-250-847-6322 <a href="mailto:matt.sakals@gov.bc.ca">matt.sakals@gov.bc.ca</a></li> </ol>

**Project Overview**

<b>Project Title</b>	<b>Total Length of time for completion of project</b>	<b>Amount Requested from SFI</b>	<b>Total Project Budget (including matching funds and in-kind)*</b>	<b>Brief Project Summary (50 words or less)</b>
Water Quality: Cumulative Effects of Forest Development and Climate Change on Temperature and Sediment	24 months	\$40,000	\$101,000	This project examines the cumulative effects of development (e.g. forest harvest, roads) and climate change (e.g. glacial melt, changes in rainfall intensity) on two elements of water quality in a watershed world-renowned for fisheries values: water temperature and sediment loading.

**What element(s) of the SFI 2010-2014 Program are addressed by your Project? (Please cite the Standard Component(s))**

Objective 1 – Forest Management Planning: Use of best scientific information available Performance Measure 1.1 Indicator h - A review of non-timber issues (... programs to promote water protection,...or to address climate induced ecosystem change).
Objective 2 – Forest Productivity: To ensure long-term forest productivity... Performance Measure 2.3 -... implement forest management practices to protect and maintain forest and soil productivity. Indicator 3 - Use of erosion control measures to minimize the loss of soil and site productivity. Indicator 7 - Road construction and skidding layout to minimize impacts to soil productivity and water quality.

<p>Objective 3 – Protection and Maintenance of Water Resources: To protect water quality in rivers, streams, lakes, and other water bodies.</p> <p>Performance Measure 3.1 - ... meet or exceed all applicable federal, provincial, state and local water quality laws, and meet or exceed best management practices ...</p> <p>Indicator 4 - Monitoring of overall best management practices implementation.</p> <p>Performance Measure 3.2 - ... have or develop, implement and document riparian protection measures based on soil type, terrain, vegetation, ecological function, harvesting system and other applicable factors</p> <p>Indicator 1 - Program addressing management and protection of rivers, streams, lakes, and other water bodies and riparian zones.</p> <p>Indicator 3 - Implementation of plans to manage or protect rivers, streams, lakes, and other water bodies.</p>
<p>Objective 6 - Protection of Special Sites: To manage lands that are ecologically, geologically or culturally important in a manner that takes into account their unique qualities.</p> <p>Performance Measure 6.1- ...identify special sites and manage them in a manner appropriate for their unique features.</p> <p>Indicator 2- Appropriate mapping, cataloging and management of identified special sites.</p>
<p>Objective 10 – Adherence to Best Management Practices: ... use of best management practices to protect water quality</p> <p>Performance Measure 10.2 - Program Participants shall monitor the use of best management practices</p> <p>Indicator 2 - Use of information from the verifiable monitoring system to maintain rates of conformance to best management practices and to identify areas for improved performance.</p>
<p>Objective 15 – Forestry Research, Science, and Technology: To support forestry research, science, and technology, upon which sustainable forest management decisions are based</p> <p>Performance Measure 15.1 - ... provide in-kind support or funding for forest research to improve forest health, productivity, and sustainable management of forest resources...</p> <p>Indicator c - water quality and/or effectiveness of best management practices including effectiveness of water quality and best management practices for protecting the quality, diversity and distributions of fish and wildlife habitats;</p> <p>Indicator g - climate change research for both adaptation and mitigation;</p> <p>Performance Measure 15.2 - ... develop or use state, provincial or regional analyses ...</p> <p>Indicator 1 - Participation... in the development or use of some of the following:</p> <p>c. best management practices implementation and conformance;</p> <p>Performance Measure 15.3 - ... broaden the awareness of climate change impacts on forests, wildlife and biological diversity</p> <p>Indicator 1 - ... monitor information generated from regional climate models ...</p> <p>Indicator 2 - Program Participants are knowledgeable about climate change impacts on wildlife, wildlife habitats, and conservation of biological diversity through international, national, regional or local programs.</p>
<p>Objective 17 – Community Involvement in the Practice of Sustainable Forestry: ... encouraging the public and forestry community to participate in the commitment to sustainable forestry, and publicly report progress</p> <p>Performance Measure 17.1 - ... support and promote efforts ... to apply principles of sustainable forest management.</p> <p>Indicator 5 - ... knowledgeable about credible regional conservation planning and priority-setting efforts that include a broad range of stakeholders and have a program to take into account the results ...</p>
<p>Objective 18 – Public Land Management Responsibilities: To promote and implement sustainable forest management on public lands</p> <p>Performance Measure 18.1 - ... participate in the development of public land planning and management processes</p> <p>Indicator 1 - Involvement in public land planning and management activities ...</p> <p>Indicator 2 - Appropriate contact with local stakeholders over forest management issues ...</p>

## Project Partners

<b>Confirmed Project Partners and Primary Contact Information</b>	<b>Brief Summary of Individual's and Organizations Qualifications and Experience (150 words or less per partner)</b>
<p>Babine Watershed Monitoring Trust</p> <p>Karen Price, Technical Advisor  <a href="mailto:pricedau@telus.net">pricedau@telus.net</a>            250-846-5359            12895 Cottonwood Road            Telkwa, BC V0J 2X3</p>	<p>The Babine Watershed Monitoring Trust (BWMT) has funded over 30 impartially-selected monitoring projects since 2005 based on an award-winning framework that points to where monitoring matters most for sustainable management. The trust compiles a knowledge summary and disseminates results to the public and decision-making bodies.</p> <p>Karen Price (PhD in ecology) has worked at the interface of science and management, with a focus on synthesizing, analyzing and communicating knowledge about consequences of resource management for 20 years. She co-developed the BWMT's innovative monitoring framework and has served as the trust's technical advisor for 8 years. Her areas of expertise include riparian ecology, disturbance dynamics, forest structure, ecosystem-based management, frameworks for learning and assessments of cumulative effects.</p>
<p>BC Timber Sales</p> <p>Ian Smith, Planning Officer,            Skeena Business Area  <a href="mailto:Ian1.smith@gov.bc.ca">Ian1.smith@gov.bc.ca</a>            1-250-638-51456            #200 – 5220 Keith Avenue,            Terrace, B.C., Canada, V8G 1L1</p>	<p>BC Timber Sales (BCTS) has a dedicated staff of forest professionals that is involved in developing timber for public auction, in support of establishing the market price of timber for the government of BC. The forest stewardship objectives of BCTS align with those of the Babine Watershed Monitoring Trust and specifically to continually improve forest management practices, based on the best available science. Ian Smith is a Registered Professional Forester with 25 + years of forestry experience. Responsibilities include participating in land use plan tables, implementing plan objectives, communicating with stakeholders including aboriginal peoples, and leading strategic and operational planning of timber development.</p>
<p>West Fraser Mills</p> <p>Dave Ripmeester, Forestry            Supervisor, Pacific Inland            Resources Division  <a href="mailto:Dave.Ripmeester@westfraser.com">Dave.Ripmeester@westfraser.com</a>            P.O. Box 3130            Smithers, B.C., Canada,            V0J 2N0</p>	<p>West Fraser Mills has a long history of forest operations in B.C. In Smithers specifically, Pacific Inland Resources Division (PIR) has been involved in forest management activities for over 35 years. PIR continues to be active in all aspects of forest planning from the strategic level to the stand level. PIR has a strong interest in achieving quality forest stewardship. Dave Ripmeester is a Registered Professional Forester with over 25 years of experience in a broad range of forestry activity.</p>
<p>Ministry of Forests, Lands and            Natural Resource Operations –            Skeena Region</p> <p>Dave Wilford, Research            Hydrologist and Natural Resource            Sciences Team Leader  <a href="mailto:dave.wilford@gov.bc.ca">dave.wilford@gov.bc.ca</a>            FLNRO            Bag 6000            Smithers, B.C., V0J 2N0</p>	<p>Dave Wilford has worked in the Skeena Region for 39 years as research hydrologist and research team leader. He has a PhD (hydrology) and has been actively involved in monitoring forest land use effects. He was a member of a team that developed guidance for aquatic monitoring in the Bulkley Timber Supply Area. The proposed project is directly related to this plan and is a part of his current research work. Dave is supported in this project by a research geomorphologist, research silviculturists, and forest health specialists. Dave is a member of the Association of BC Forest Professionals and the Association of Professional Engineers and Geoscientists of BC. He is the only member to have received the highest awards from both associations. Dave is the author of the Watershed Workbook – a tool to determine cumulative hydrologic impacts. This tool is the foundation of the Forest Practices Code Watershed Assessment Procedures.</p>

## **Project Details**

### *Project methodology and impact*

The project examines the cumulative impact of development and climate change on two elements of water quality (sedimentation hazard, temperature) within watershed sub-basins of the Babine Watershed. There are three components to the project: field monitoring of sedimentation hazard; field monitoring of temperature; and a model that predicts impacts over larger spatial and temporal scales calibrated to the field data. In part 1, a stream-crossing-quality indicator will be used to assess the hazard of sedimentation to water quality in watershed sub-basins that have high priority due to development history and terrain considerations. In part 2, road networks and harvested sites that may impact stream temperature (e.g. harvested wet sites, road ditches) will be identified as priority sites for field measurement of summer temperature. Finally, in part 3, field data will be used to calibrate cumulative effects assessment including glacial melt and flow models to project cumulative impacts to hydrology, temperature and sedimentation over the short- and medium-term.

The intended impact of the project is to improve forest management practices as they relate to water quality. Project results will inform the level of risk and uncertainty associated with strategies to maintain water quality and may increase confidence in current activities, suggest further activities, or lead to a review of existing land use plan measures related to water quality. Forest management practices that directly relate include road and in-block sedimentation control and riparian management practices.

### *Relationship to SFI conservation strategies*

This project will illustrate the role of SFI Standard requirements in protecting water quality by evaluating 1) management practices at stream crossings by forest roads, 2) management practices in relation to stream temperature, and 3) cumulative hazard of sedimentation to water quality within watershed sub-basins, and the cumulative effect of development and climate change on temperature. The project specifically includes an effectiveness evaluation of existing land-use plan objectives, and measures and indicators for water quality, which will inform future decision-making by government. Existing best management practices can be assessed for achievement of objectives and methods to improve practices may be identified. The project will provide knowledge to help refine best-management practices under climate change.

Stream crossings will be objectively assessed for sedimentation hazard and the results are expected to illustrate whether objectives related to managing sediment are being effective at the site and sub-basin scales. Management practices such as limiting areas of exposed soils, re-vegetation of disturbed soils, road surface erosion control and sediment source and transport management will all be informed by the results of the project. Thresholds for sedimentation hazard and assessment methods will be evaluated towards improvement in achieving objectives.

There is currently significant uncertainty regarding the effects of climate change on water quality, including impacts on stream temperature, hydrology and seasonal peak flows. The Babine watershed supports very high fisheries values including significant commercial, aboriginal and recreational fisheries. Impacts to these values due to climate change need to be better understood and management practices that may limit or avoid negative impacts need to be identified. Measures such as enhanced riparian retention and shading of feeder streams and sites with shallow groundwater, and water management techniques on forest roads may be evaluated and methods for improved management may be recommended. The project will have a focus on stream temperature and will include temperature monitoring and expert interpretations on levels of risk and uncertainty associated with strategies to maintain water quality.

The project has been identified as a priority, as determined by the Babine Watershed Monitoring Trust framework. The framework is founded on a knowledge base of scientific information relating to each measurable indicator of management activities that may influence whether an objective may be achieved. The

framework determines project priorities based on the level of risk associated with not achieving an objective and the level of uncertainty about each level of risk.

The project will aid in capacity building by sharing results with all forest managers that operate within the Babine watershed, including forest companies that are controlled by aboriginal communities. This is expected to enhance their capacity to manage natural resources within their traditional territories and may enhance their interest in pursuing the SFI Certification Standard.

*Promotion of outcome*

Project results will be reported and included in the knowledge base of the Babine Watershed Monitoring Trust. BWMT has a communication strategy that presents all project outcomes to several audiences, including decision-makers (government agencies, First Nations), stakeholders including the Bulkley Valley Community Resources Board, researchers and interested public. The strategy includes a website, brochure, annual email of project summaries, 5-year activity summary as well as presentations and informal communications. Results of this project will be presented as part of the BV Research Centre Seminar Series and at other appropriate venues. If results warrant, project results will be published in a peer-reviewed article after project completion.

Communication of outcomes will improve our current understanding of the achievement of objectives for water quality and will inform future priorities for action. Project results will be shared with forest managers within government and industry that have interests in the Babine watershed and existing forums such as Forest District Steering Committees will be used as venues to provide report results and discuss follow-up actions.

<b>Project Goals</b>	<b>Actions</b>	<b>Tangible Outcomes</b>	<b>Measures of Success</b>	<b>Grant Funds</b>	<b>In-Kind or Matching Funds</b>
Estimate short-term sediment impact to water quality at site scale	<ul style="list-style-type: none"> <li>• Select priority sub-basins and crossings based on existing GIS data and expert opinion</li> <li>• Use of a measureable and verifiable stream crossing quality indicator to assess sediment hazard at high priority crossings</li> </ul>	<ul style="list-style-type: none"> <li>• Report documenting hazard locations and relative ratings and indicating which crossings require mitigation.</li> <li>• Communication and review of the results with all interested forest managers (including government and First Nation decision makers).</li> <li>• Evaluation of the effectiveness of current practices to limit soil erosion and sedimentation due to roads.</li> <li>• Development and/ or improvement of best management practices to apply to forest roads that limit sediment impacts</li> </ul>	<ul style="list-style-type: none"> <li>• Proportion of priority crossings sampled</li> <li>• Proportion of sites sampled that will have an improved hazard score over time due to subsequent actions taken to mitigate the sediment hazard.</li> <li>• Number of agencies and forest licensees that considered the results and developed or refined related best management practices</li> </ul>	\$12,000	\$18,000  (includes \$12,000 research activity matching funds and \$6,000 in-kind)

		(e.g. erosion control measures, road construction practices, riparian management).			
Identify warm water sources that may pose risk to temperature-sensitive streams	<ul style="list-style-type: none"> <li>• Select priority sub-basins and sites based on existing GIS data (e.g. road networks, harvested wet ecosystems, sensitive fish habitat) and expert knowledge</li> <li>• Measure temperature in selected road ditches linked to stream systems in July over two years and correlate with temperature data</li> </ul>	<ul style="list-style-type: none"> <li>• Report documenting temperature, analyzing correlations between temperature and relevant management variables and suggesting which sites are most at risk.</li> <li>• Report informing our understanding and awareness of climate change impacts on water quality, including temperature.</li> <li>• Results inform regional conservation planning and priority-setting efforts regarding climate change impacts on forest values.</li> </ul>	<ul style="list-style-type: none"> <li>• Ability to detect patterns relating temperature to other variables</li> <li>• Development and application of best management practices to reduce risk to temperature sensitive streams.</li> </ul>	\$12,000	\$19,000  (includes \$1,000 staff salary matching funds and \$10,000 Research activity matching funds and \$8,000 in-kind)
Assess cumulative impacts of development and climate change on water quality	<ul style="list-style-type: none"> <li>• Calibrate existing models with data from sediment and temperature studies</li> <li>• Use model of glacial melt to project impacts of climate change on hydrology and sedimentation over short and medium times</li> <li>• Use meta-model approach to examine cumulative effects of development (e.g. roads, harvest</li> </ul>	<ul style="list-style-type: none"> <li>• Application of regional climate change model, improving awareness and understanding of forest management impacts to water quality in a changing climate.</li> <li>• Report documenting model output and projecting cumulative impacts at site and sub-basin scale over the short and mid-term</li> <li>• Evaluation of measures to achieve water management</li> </ul>	<ul style="list-style-type: none"> <li>• Successful model calibration, verification and validation</li> </ul>	\$11,000	\$15,000  (includes \$1,000 staff salary matching funds, \$11,000 Research activity matching funds and \$3,000 in-kind)

	on wet sites, riparian cover) and climate change (glacial melt and air temp.)	objectives given possible climate change impacts			
Communication of results to relevant groups (includes education and outreach meetings and efforts)	<ul style="list-style-type: none"> <li>Follow BWMT communications strategy</li> <li>Consider publication if results warrant</li> </ul>	<ul style="list-style-type: none"> <li>Reports completed and made available to interested parties</li> <li>Updated knowledge base to inform future activities and priorities</li> <li>Summary information presented to relevant audiences via outreach and extension efforts.</li> <li>Enhancing partnerships between forest managers, government decision makers and community based stakeholders with interests in conservation planning and priority setting.</li> <li>Results inform the BCTS SFI review towards continuous improvement of the BCTS sustainable forest management system.</li> </ul>	<ul style="list-style-type: none"> <li>Communication of results to relevant groups— response from groups showing how results will impact their decisions, including development, improvement and/or application of best management practices for water quality.</li> <li>Updated knowledge base to inform future activities and priority setting</li> </ul>	\$5,000	\$9,000  (includes \$5,000 communication matching funds and \$4,000 in-kind)
			<b>Totals:</b>	<b>\$40,000</b>	<b>\$61,000</b>  (includes \$21,000 in-kind)

**Project Timeline**

Project completion: 2 years

- |                 |  |
|-----------------|--|
| April 2014      | Select contractors and initiate contract                           |
| May 2014        | Technical working group session 1 to plan activities               |
| May – June 2014 | Select sites for sediment and temperature field work (Milestone 1) |

July – Aug 2014	Field work year 1
Sept – Oct 2014	Analyse data and write interim (year 1) reports (Milestones 2 and 3)
Nov 2014	Technical working group session 2 to evaluate results
Nov 2014 – May 2015	Calibrate existing climate models to selected sub-basins and run interim models (Milestone 4)
April 2015	Technical working group session 3 to review methodology and refine if necessary
June – Aug 2015	Field work year 2
Sept – Oct 2015	Write final reports for field studies (Milestones 5 and 6)
Nov 2015	Technical working group session 4 to evaluate results
Nov 2015 – Feb 2016	Re-calibrate if necessary based on year 2 data and run final models
Feb 2016	Technical working group session 5 to evaluate model results
March 2016	Write final report on cumulative effects (Milestone 7)

### **Project Budget**

<b>Expenditure</b>	<b>SFI Grant Funds</b>	<b>Total Matching Funds</b>	<b>Source of Matching Funds*</b>	<b>In-Kind Contributions*</b>	<b>Source of In-kind Contributions</b>	<b>Total per expenditure category</b>
<b>Staff Salary and Benefits</b>	\$5,000 (KP)	\$2,000 (KP)	BWMT	\$1,000 (IS) \$1,000 (DR)	BCTS PIR	\$9,000 (\$2,000 in-kind)
<b>Operating Costs</b>						
Research Activities (includes related travel)	\$30,000	\$33,000	BWMT			\$63,000
Meetings (technical and professional support, meeting rooms)				\$10,000 \$2,500 \$2,500	FLNRO BCTS PIR	\$15,000 (in-kind)
Education, Outreach and Communications	\$5,000	\$5,000	BWMT	\$1,500 \$1,500 \$1,000	BCTS PIR BWMT	\$14,000 (\$4,000 in-kind)
<b>Total</b>	<b>\$40,000</b>	<b>\$40,000</b>		<b>\$21,000</b>		<b>\$101,000</b> <b>(\$21,000 in-kind)</b>

In-kind contributions are as follows:

- Staff Salary and Benefits – Project administration support (e.g. project design, work plan outline, information assembly, project monitoring and quality assurance).
- Meetings – Professional and technical support (technical working group) and meeting rooms. Contributions are allocated to project goals described on pages 6 and 7.
- Education and Outreach – Support with development and delivery of presentations to forest managers, government decision makers, community groups, etc.

**Forest Management at WI Nature Centers & Camps  
SFI Inc. Conservation Grant Program Proposal**

**Organization Information**

Lead Organization Name and Address	University of Wisconsin - Stevens Point, College of Natural Resources, 2100 Main St., Stevens Point, WI 54481
Name, phone and email for Project Director	Dr. Steve Kerlin, 715-346-4272, <a href="mailto:skerlin@uwsp.edu">skerlin@uwsp.edu</a>
Lead Organizational Mission Statement	To provide education, research and outreach in integrated natural resources management, environmental education, and paper science and engineering (UWSP College of Natural Resources).
Lead Organization Annual Operating Budget	\$214,388,513 UWSP FY 2014
Two references (Name, Organization, email and phone) who can speak to the relevance and potential impact of the Project (these should not be the same as your Project partners):	1. Jesse Haney, Wisconsin Environmental Education Foundation, <a href="mailto:jesse.haney@uwsp.edu">jesse.haney@uwsp.edu</a> , 715-346-3604 2. Cathy Techtman, UW-Extension, <a href="mailto:catherine.techtman@ces.uwex.edu">catherine.techtman@ces.uwex.edu</a> , 715-561-2695

**Project Overview**

Project Title	Total Length of time for completion of project (in months, from commencement to final reporting)	Amount Requested from SFI	Total Project Budget (including matching funds and in-kind contributions)	Brief Project Summary (50 words or less)	What element(s) of the SFI 2010-2014 Program are addressed by your Project? (Please cite the Standard Component(s))
Forest Management at WI Nature Centers & Camps	24 months (2 years), July 2014 - June 2016	\$120,000 total  (\$10,000 for work at each of the 12 project sites)	\$180,103.20	Forestry and environmental education faculty will mentor students from UWSP to assist Wisconsin nature centers and camps in the preparation or revision of land management plans, implementation of forest management practices, and design of educational programming to highlight land management practices. The project will work with 12 organizations (6/yr.).	SFI Objectives for Sustainable Forestry #1-11 and 15-18 are addressed. In particular project components address forest management plans; practices that promote forest health and productivity; protection of water resources, biodiversity, recreational value and special sites; adherence to best management practices; and landowner outreach, training and education.

## Project Partners

Confirmed Project Partners	Primary Contact Name & Title	Complete Contact Information (Email, Phone Number, Mailing Address)	Brief Summary of Individual's and Organizations Qualifications and Experience (150 words or less per partner)
Wisconsin SFI State Implementation Committee	Gordon Mouw, Certification & Resource Manager at NewPage Corp.	<a href="mailto:Gordon.Mouw@newpagecorp.com">Gordon.Mouw@newpagecorp.com</a> , 715-422-3295, PO Box 8050, Wisconsin Rapids, WI 54495	Mr. Mouw is the certification & resource manager at NewPage and chair of the WI SFI State Implementation Committee. This committee follows and implements SFI standards with corporations, organizations and professionals in WI.
Upham Woods Outdoor Learning Center (Site #1)	Justin Hougham, Director of Upham Woods and UW-Extension Specialist in Environmental Education	<a href="mailto:Justin.hougham@ces.uwex.edu">Justin.hougham@ces.uwex.edu</a> , 608-254-6461, Upham Woods, N194 County Rd. N, Wisconsin Dells, WI 53965	Dr. Hougham is the director of the 345 acre state 4H camp at Upham Woods. The camp includes property along the WI river and Blackhawk Island. Dr. Hougham and staff managed the forested and river property and lead educational programs for 4H and school groups.
Central Wisconsin Environmental Station (Site #2)	Scott Johnson, Director	<a href="mailto:scott.johnson@uwsu.edu">scott.johnson@uwsu.edu</a> , 715-346-2937, Central Wisconsin Environmental Station, 10186 County Rd. MM, Amherst Junction, WI 54407	Mr. Johnson is the director one of the field stations of the College of Natural Resources at UWSP. He and his staff manage the forest, two lakes and programming areas at this educational station of 200+ acres. This site is home to one of the 6-week intensive summer sessions for undergraduate natural resources students, a charter school and other educational programming, including on-site environmental education and outdoor skill programming to 3,500 school children a year. The site is a demonstration site for forest management in the context of an organization with an educational mission, runs a summer camp for kids and teaches two UWSP classes each semester the train college students how to teach kids about the outdoors and be positive youth mentors and leaders. These students to on to work throughout the U.S. and world, many times duplicating what they learned at CWES at their new facilities.
Riveredge Nature Center (Site #3)	Jessica Jens, Executive Director	<a href="mailto:jjens@riveredge.us">jjens@riveredge.us</a> 262-416-1068 Riveredge Nature Center, PO Box 26, Newburg, WI 53060	Mrs. Jens manages 379 acres of forests, prairies, wetlands, and Milwaukee river shoreline and educational programs. The organization actively collects ecological data using citizen scientists and yearly managed their prairies with fire. They have a staff person dedicated to land management and are currently developing plans for tree harvesting, minimizing deer impact, long-term monitoring of their forests.

Note: Nine additional project partners (implementation project sites) will be selected from a current list of 41 nature centers and camps that have requested assistance with land management plans and projects and other organizations that submit requests for assistance.

## **Project Details**

### *Introductory Narrative:*

Forestry and environmental education faculty from the University of Wisconsin-Stevens Point will mentor UWSP students to assist WI nature centers and camps with the development of land management plans (Goal 1), implementation of forest management practices (Goal 2), and design of educational programming (Goal 3) to highlight best management practices. Project personnel will also use case studies of the 12 site based projects (6 per year) to disseminate recommended practices to similar organizations across WI and the country.

This project will follow a similar model that has been developed in a current small pilot award from UW-Cooperative Extension. The pilot grant has already identified a clear need from nature centers and camps for assistance in land management planning and implementation. A call for assistance in the pilot grant was answered by 41 organizations across the state. Pilot grant funds have allowed us to develop and refine the process by working with a small number of these organizations. Nature centers and camps in WI typically own and manage 200-1000 acres, many of which include unique ecological areas that are used for educational programming. Very few of these organizations have current land management plans (if they have a plan at all). They struggle to implement ongoing forest management practices. And, they lack the time, funds, or expertise to develop and implement sustainable practices on their own.

By providing technical assistance to these organizations, this project will produce comprehensive management plans and implementation of on-the-ground practices that will promote forest health on approximately 4,800 acres (average of 400 acres at each of 12 sites). The project will also serve as education and training for future professionals by providing real-life service learning activities for students in the college of natural resources at UW-Stevens Point. We estimate that at least 50 students will be directly involved in these activities. Students will be involved in: GPS of roads, trails and unique features; creating GIS databases and maps (student service learning projects in Mr. Burns's GIS class in consultation with the UWSP GIS Center); conducting forest inventories; preparation of Tree Farm qualifying forest management plans; tree cutting and saw milling activities, invasive species control; development of ideas for education and outreach programming, etc. Education and outreach is included as a component that will help the nature centers and camps highlight forest management practices in their educational programming, and to use the activities at their organization as demonstration sites.

A January 2014 survey of WI nature centers, camps and related organizations revealed that each organization operates educational programs for an average of 6,000 K-12 students and 4,000 adults per year. The potential impact of this project to educate the public on sustainable forestry practices is significant. Approximately 120,000 people visit 12 such sites in a given year (average of 10,000 visitors at each site).

### *SFI Conservation Categories:*

The proposed project illustrates the role of SFI in the Forest Health and Wildlife, Fish and Biodiversity categories. Project personnel will provide guidance and technical assistance to executive directors, executive boards, and educational staff at 12 nature center sites. Preparation/revision of a comprehensive land management plan following SFI and Tree Farm guidelines will be produced for each site. Development of management plans will include conversations about working forest conservation easements with local land trusts and/or the WI Managed Forest Law Program where appropriate. Management plans for nature centers and camps will be prepared to meet all Tree Farm requirements, and will include sections on harvest scheduling and financial planning. Plans will also provide guidance for educational programming such as promoting biodiversity, conducting research, demonstration sites, links to outreach education, and citizen science data

gathering. All plans will be written so that the plan and the organization will be ready for acceptance into the WI Tree Farm program if the center chooses to enroll.

Project personnel will also organize and lead forest management projects specific to the needs identified for each site. On-site management activities will vary and be specific to each site. Activities may include GIS mapping, GPS trail and unique feature mapping, forest inventory, tree harvesting, saw milling, restoration and promotion of habitat for biodiversity, tree and native species planting, addressing damage from deer and emerald ash borer, invasive species, data collection, etc... Three examples that illustrate the uniqueness of sites that the project will work with are: research and monitoring of the 200 acre island of relatively undisturbed second growth forest at Upham Woods Outdoor Learning Center; wetland and fen habitat restoration for the endangered swamp metalmark butterfly at Riveredge Nature Center; and cutting and on-site milling of large diameter hazard trees at the Central Wisconsin Environmental Station - lumber will be used for flooring, siding and trim at the facility. Additional sites to be selected will likely also have unique ecological features, as most nature centers and camps were established to preserve and sustainably manage special natural areas.

*Promotion of the Outcomes:*

Project personnel and site-based partners will promote outcomes of the project, and SFI through educational programming (Goal 3). Dr. Kerlin and environmental education students through the Nature Center and Camp management class will propose curriculum ideas and collaborate with nature centers and camps to embed examples of forest management practices into the K-12 and adult educational programming at the selected sites. Project personnel and students will also prepare press releases, and assist the sites in creating their own press releases, lead conference presentations, prepare white papers for other professionals, and develop a webpage of case study examples and recommended practices (Goal 4).

Project Goals	Actions	Tangible Outcomes	Measure Success	Grant Funds*	In-Kind or Matching Funds*
1. Create or update Land Management Plans at 12 project sites	Site visits and meetings, collaboration of experts and site staff to review and write management plans, creation of GIS maps	All project organizations will have up to date land management plans that follow Tree Farm and SFI standards	Production of new or updated land management plans including GIS maps for all 12 sites, verification that plans meet WI Tree Farm Program Standards	\$25,000	\$16,103.20
2. Conduct forest management activities at 12 project sites	Site specific action items conducted at each site	Forest health will be improved at each site (estimated 4,800 acres)	Action items specific to each site completed	\$74,500	\$27,000
3. Link education and outreach programming to land management at project sites	Design or update educational programming curricula to highlight land management practices at each site	Students and community members learn about healthy forest management from educational programming (approximately 120,000 visitors participate in programs at 12 sites each year)	Lesson plans, educational program plans, and/or implementation of educational programs	\$12,000	\$12,000

4. Disseminate case examples and recommendations	White papers, press releases, conference presentations, web-accessible information	Organizations outside the project will learn about land management from examples and recommendations	Production of white papers, evidence of press releases and coverage, evidence of conference presentations, and creation of web pages	\$8,500	\$5,000
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\*Our proposal (and preference) is to work with six project sites each year for a total budget request from SFI of \$60,000 each year. If SFI is not able to fully fund the proposed project we are willing to decrease the scale of the project to work with a lower number of sites with a corresponding estimated budget decrease of \$10,000 for each site less than six per year.

**Project Timeline**

The project will take place over 2 years, July 2014-June 2016. Six nature centers, camps or other similar organizations will be selected and work will be carried out at each of those sites in each year (12 project partners/implementation sites total).

**2014-2015**

- July Kickoff meeting with SFI (or earlier upon notice of awarded grant).
- Jul.-Aug. Selection of 6 sites for year 1. Press release.
- Sept.-Oct. Initial site visits, tours, and meetings with key staff at 6 sites – action items specific to each site will be determined at or shortly after the site visits.
- Oct. Quarterly briefing call with SFI.
- Nov.-Jun. Development of land management plans, GIS maps, implementation of site specific forest management activities at all 6 sites, creation of version 1 of webpages.
- Dec. 6 month progress report, milestones and payment – 6 sites chosen for year 1, initial site visits conducted, initial review of existing land management plans completed, on-site forest management action items identified specific to each site. Quarterly briefing call with SFI.
- Feb.-May Development of curriculum ideas for K-12 and adult outreach educational programs to highlight forest management practices.
- April Quarterly briefing call with SFI.
- May-Jun. Review of land management plans by WI Tree Farm Program and SFI.
- TBD Conference presentation.
- Jun. 12 month progress report, milestones and payment – GIS maps created for all 6 sites, land management plans written and reviewed by WI Tree Farm Program and SFI, On-site forest management action items completed, initial web pages created year 1 examples and recommendations, education and outreach program ideas designed for each site, white paper written and distributed.

**2015-2016**

- July Quarterly briefing call with SFI.
- Jul.-Aug. Selection of 6 sites for year 2. Press release.
- Sept.-Oct. Initial site visits, tours, and meetings with key staff at 6 sites – action items specific to each site will be determined at or shortly after the site visits.
- Oct. Quarterly briefing call with SFI.
- Nov.-Jun. Development of land management plans, GIS maps, implementation of site specific forest management activities at all 6 sites, creation of version 1 of webpages.

Dec. 18 month progress report, milestones and payment – 6 sites chosen for year 1, initial site visits conducted, initial review of existing land management plans completed, on-site forest management action items identified specific to each site. Quarterly briefing call with SFI.

Feb.-May Development of curriculum ideas for K-12 and adult outreach educational programs to highlight forest management practices.

April Quarterly briefing call with SFI.

May-Jun. Review of land management plans by WI Tree Farm Program and SFI.

TBD Conference presentation.

Jun. 24 month final report, milestones and payment – GIS maps created for all 6 sites, land management plans written and reviewed by WI Tree Farm Program and SFI, on-site forest management action items completed, initial web pages created year 2 examples and updated recommendations, education and outreach program ideas designed for each site, updated white paper written and distributed.

**Project Budget**

<b>Expenditure</b>	<b>SFI Grant Funds</b>	<b>Total Matching Funds</b>	<b>Source of Matching Funds</b>	<b>In-Kind Contributions</b>	<b>Source of In-kind Contributions</b>	<b>Total per expenditure category</b>
<b>Staff Salary and Benefits</b>						
Dr. Steve Kerlin (Project Lead), Assistant Professor of Env. Education				\$15,351.79	UWSP College of Natural Resources	\$15,351.79
Kevin Burns, Associate Scientist - Treehaven Forest Ecologist				\$13,705.42	UWSP College of Natural Resources	\$13,705.42
John Heusinkveld, Assistant Director – Programming at Treehaven				\$12,004.47	UWSP College of Natural Resources	\$12,004.47
Forestry Outreach Specialist (Tentatively John Duplissis, if not able to participate because of medical reasons another forestry faculty member will participate)				\$13,041.52	UWSP College of Natural Resources	\$13,041.52
Graduate Student, ½ time assistantship, 10 hrs./wk.	\$31,702.50					\$31,702.50
<b>Operating Costs</b>						
Activities – On-site projects specific to each site & operating supplies	\$52,797.50					\$52,797.50
Student organizations fees for activities conducted in on-site projects by students	\$3,000	\$3,000	\$250 matching funds from each of the 12 sites			\$6,000

Travel – Site visits	\$12,000					\$12,000
Travel – Conference & professional meeting presentations	\$7,500 (\$1,500/ personnel)					\$7,500
Education & Outreach	\$12,000 (\$1,000/ organization)	\$3,000	\$250 matching funds from each of the 12 sites			\$15,000
Communications	\$1,000					\$1,000
<b>Total</b>	<b>\$120,000</b>	<b>\$6,000</b>		<b>\$54,103.20</b>		<b>\$180,103.20</b>

Note: Our proposal (and preference) is to work with six project sites each year for a total budget request from SFI of \$60,000 each year. If SFI is not able to fully fund the proposed project we are willing to decrease the scale of the project to work with a smaller number of sites with a corresponding estimated budget decrease of \$10,000 for each site less than the proposed six sites per year.

### Budget Narrative

#### *Personnel*

The four faculty members are contributing approximately 1 month of their time to the project each year. This project complements their outreach and extension appointments. These personnel will work in teams of 2 (a forestry expert and a nature center/camp management/education expert) focusing on work at specific sites but will also collaborate across sites with common projects. Funds are requested to support a half-time graduate assistantship (10 hours/week). The graduate student will assist with coordination of the project across personnel and project sites. This student will also contribute to communications, dissemination and some on-site activities.

#### *Operating Costs*

The activities budget line is the largest portion of the budget as it reflects the ability to have immediate and sustained impact on management practices at the 12 project sites. The bulk of this budget line (\$42,797.50) will be used for supplies to implement site specific forest management practices that will be determined by the action items developed in collaboration with each of the 12 selected sites. Examples of operating supplies to implement forest management practices at the projects sites may include fencing for deer exclosures, saplings, seeds or other starter plants, chemicals for pest and invasive species control, cutting and trimming equipment, sampling and monitoring devices, interpretive signage on forest management demonstration sites, etc... Equipment and supplies purchased for these purposes will remain at the project sites so they can sustain forest maintenance projects into the future. The activities budget line also includes costs for use of equipment and supplies owned by the College of Natural Resources and the Treehaven Field Station (\$10,000). Examples of equipment that may be used include tractors, portable sawmill, chainsaws, fuel, GPS devices/field computers, surveying equipment, general forestry equipment for forest inventories, etc...

Student organizations' fees are payments for student groups for their services and supplies that they contribute to on the ground projects at the 12 sites. Student services will greatly contribute to the on the ground work conducted at the project sites. \$3,000 is requested from SFI and each organization will also contribute \$250 for a total of an additional \$3,000 to this budget item.

The travel budget includes travel to the project sites for initial site visits and on the ground projects. Other travel expenses are for the project personnel to disseminate case studies and recommendations in conference and professional meeting presentations such as the SFI, Society of American Foresters, Wisconsin Association for Environmental Education, North American Association for Environmental Education annual conferences.

The education and outreach costs are for the development and implementation of educational programs (K-12 student, adult, and training for professionals). Each site will use \$1,000 in funds from SFI and contribute \$250 of their own funds for this function.

\$1,000 is requested for communication uses included production of press releases, website development and other internal and external communication and dissemination.

## SFI INC. CONSERVATION PARTNERSHIPS GRANT PROGRAM 2014

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**AWES-SFI “LANDOWNER OUTREACH PROGRAM”**

Lead Organization Name and Address	<b>Agroforestry &amp; Woodlot Extension Society (AWES)</b> 17507 Ford Road, Edmonton AB T5Y 6H3 Canada
Name, phone and email for Project Director	1 <sup>st</sup> Contact: Folkert Hoekstra, <i>Executive Director</i> Phone: (587) 436-1646 E-mail: <a href="mailto:f.hoekstra@awes-ab.ca">f.hoekstra@awes-ab.ca</a>  2 <sup>nd</sup> contact: Jeff Renton, <i>Project Manager</i> Phone: (780) 643-6732 E-mail: <a href="mailto:j.renton@awes-ab.ca">j.renton@awes-ab.ca</a>
Lead Organizational Mission Statement	To increase awareness of economic, social and environmental values of trees in the landscape. AWES promotes responsible agroforestry and woodlot management by providing support to landowners, land stewards and others who influence land-use practices.
Lead Organization Annual Operating Budget	Approximately CAD \$ 250,000,-
Two references (Name, Organization, email and phone) who can speak to the relevance and potential impact of the Project (these should not be the same as your Project partners):	Name: Mr. Toso Bozic Org: Alberta Agriculture and Rural Development Cell: (780) 940-6107 E-mail: <a href="mailto:toso.bozic@gov.ab.ca">toso.bozic@gov.ab.ca</a>  Name: Mr. Byron Grundberg Org: Woodlot Association of Alberta Phone: (780) 429-5871 / (780) 462-8626 E-mail: <a href="mailto:byron.grundberg@mnp.ca">byron.grundberg@mnp.ca</a>

**PROJECT OVERVIEW**

Project Title	AWES Landowner outreach program
Total Length of time for completion of project (in months, from commencement to final reporting)	36 months
Amount Requested from SFI	CAD \$ 170,000
Total Project Budget (including matching funds and in-kind contributions)	CAD \$ 340,000
Brief Project Summary (50 words or less)	The project primarily involves education of landowners and land stewards regarding sustainable forest management practices for the benefit of both economic, ecological and social values that are provided by forests.
What element(s) of the SFI 2010-2014 Program are addressed by your Project? (Please cite the Standard Component(s))	This project illustrates and improves the role of SFI 2010-2014 Standard Objective 8 for Fiber sourcing within Canada/US. Objective 8 prescribes that SFI program participants shall arrange a “Landowner Outreach program”.

**PROJECT PARTNERS**

Confirmed Project Partners (list organization name only)	Primary Contact Name & Title	Complete Contact Information (Email, Phone Number, Mailing Address)	Brief Summary of Individual's and Organizations Qualifications and Experience (150 words or less per partner)
Tba			
Tba			
Tba			

**INTRODUCTION - PRIVATE FORESTLAND IN ALBERTA**

According to Alberta Agriculture and Rural Development there are more than 3.6 million hectares of privately owned forested land in Alberta. This area represents approximately a substantial five percent of Alberta's total land base. The private forestland sector, a sub-sector of the Alberta's forest industry, also makes important contributions to Alberta's economy. Many forest product processing facilities in Alberta rely to some extent on timber harvested from private land to supplement or, at times, substitute their Crown fibre supplies. Employment estimates (attributed to timber harvesting activities on private forestland) of around 480 FTE in 2009; substantially down from 2005 estimates of close to 2100. Historical revenue (millgate) generated by this sector has ranged from approximately CAD \$ 125 million in 2005 to approximately CAD \$ 24 million in 2009.

Forest owners in Alberta, of who many are farmers, value trees for a variety of reasons. Some owners of forested private land may go as far as developing management plans in line with sustainable forest management principles. Others may manage for forest product extraction without regard for forest sustainability. Another group includes those who own private forestland for the provision of other values and benefits such as recreation, aesthetics and, ecosystem goods and services (such as beauty and scenery, biodiversity, watershed and erosion protection, conservation and privacy).

**BACKGROUND OF THE PROJECT**

In Alberta, woodlots are either actively or more passively managed. Active management is not necessarily indicative of sustainable forest management. As compared to some other jurisdictions in Canada, such as British Columbia, Alberta does not have any legislation in place to regulate management of private forestland, or other trees in agricultural land. Because the private forestland sector, including woodlot management and agroforestry, is not regulated, the sustainability of Alberta's private forestland sector is at risk.

We learn from recent history that through the early 1990's the trend to fell private forests for their economic value (also referred to as "forest liquidation") escalated. Tens of thousands of hectares of private land were deforested before the turn of the century due to pressure exerted by expanding

agriculture businesses, the prospering oil and gas industry and increased demand of the forest sector. More importantly, the negative impacts on wildlife, soil and water began to arouse public concern. The economic downturn has slowed down the mentioned negative impacts, but even today, many landowners still convert forests to (mostly) agricultural land and are not committed to maintaining their woodlots or establish new forests. For many woodlot owners, timber harvest is a one-time income source as many harvests on woodlots are liquidation cuts where sustainable forest management is not practiced.

In the meanwhile, the demand for raw materials from timber companies is expected to grow significantly in the years ahead, and the world economies are already in demand for more timber products. Additionally, both the capacity increase that has been realized by many timber processing companies over the last years, and the fast growing sales into Asian markets, have the potential to increase pressure and impact on private forestland in Alberta.

Education and awareness of sustainable forest management is therefore, perhaps more than ever, essential to secure future timber supplies and healthy forests & ecosystems for the benefit of all citizens. Private forest landowner awareness of the full extent of opportunities from private forest ownership is limited.

## **THE AGROFORESTRY & WOODLOT EXTENSION SOCIETY**

An important voice for the private forestland sector in Alberta is the Agroforestry & Woodlot Extension Society (AWES). AWES is a not for profit organization with membership that includes representatives of government, industry, and landowner organizations such as the Woodlot Association of Alberta and the Weberville Community Forest Association. AWES evolved from the former Woodlot Extension Program and became a legal entity in 2010. The Woodlot Extension Program was established in 2000 to provide extension services to landowners and to encourage the environmental stewardship and sustainable management of privately owned forested land in Alberta.

AWES plays an important role in supporting the private forestland sector by:

- Increasing the awareness of the economic, social and environmental values of woodlots and agroforestry;
- Promoting responsible woodlot and agroforestry management thereby contributing to the sustainability of the sector;
- Providing education, extension and project services to private forest landowners.

## **IMPACT OF THIS PROJECT**

AWES and project partners are able to increase awareness of the economic, social and environmental values of trees in the landscape by providing a wide range of education and extension activities to landowners and land stewards. The program will help to secure future timber supplies by educating and encouraging landowners to preserve and manage woodlots for multifunctional purposes, start new woodlots and discourage elimination of woodlots and other trees in the landscape. AWES has developed substantial experience and knowledge over the years and is able to address specific SFI objectives AND support several areas in all of the five conservation categories as mentioned in the SFI Conservation partnerships grant program.

## THE ROLE OF THE SFI STANDARD, PRINCIPLES & OBJECTIVES IN THE PROJECT

In the SFI 2010-2014 standard, Objective 8 of the fiber sourcing objectives aims to broaden the practice of sustainable forestry by forest landowners through fiber sourcing programs.

When SFI-certified timber processing companies purchase wood from private landowners, they are expected to inform them for the use of sustainable forest management practices, and for identification and protection of important habitat elements for wildlife and biodiversity, including Forests with Exceptional Conservation Value.

Measured indicators of objective 8, Landowner Outreach:

1. Program Participants shall supply regionally appropriate information or services (e.g. information packets, websites, newsletters, workshops, tours, etc.) to forest landowners, describing the importance and providing implementation guidance on:
  - a. best management practices
  - b. reforestation and afforestation
  - c. visual quality management
  - d. conservation of critical wildlife habitat elements, biodiversity, threatened and endangered species, and Forests with Exceptional Conservation Value
  - e. management of harvest residue (e.g. slash, limbs, tops) considers economic, social, environmental factors (e.g. organic and nutrient value to future forests) and other utilization needs
  - f. control of invasive exotic plants and animals
  - g. characteristics of special sites
2. Program to address Forests with Exceptional Conservation Value in harvests of purchased stumpage.
3. Encourage forest landowners to participate in forest management certification programs.

The WCSIC (Western Canada Sustainable Forestry Initiative Implementation Committee) has therefore developed the 'Wood producer information package', a useful tool for the participating companies in western Canada to inform landowners.

However, in order to fully implement the SFI standard objectives for fiber sourcing, and meet their true intentions, it takes much more than this information package to get, and keep landowners involved. By acting as intended in the objectives, a company truly demonstrates its good intentions for sustaining forests, protecting the ecosystem and guaranteeing a stable supply of raw timber material for the future. So far, there has been made no or little effort in Western Canada to improve this situation. The major forest companies acknowledge this, and therefore widely support AWES as a professional, independent third party to deliver extension services.

AWES believes that certification can contribute to fulfilling the mission of its organization and therefore wants to be a key player in this development. AWES (preceded by the Provincial 'Alberta Woodlot Extension Program' - WEP) has over ten years experience in working with landowners throughout Alberta and is, together with the project partners, the ultimate on-the-ground organization to help improve the role and implementation of this objective.

## THE ROLE OF THE CONSERVATION GRANT CATEGORIES IN THE PROJECT

Our integral approach, technical knowledge and network provide that AWES is capable to address both the SFI landowner outreach indicators AND many objectives outlined in each of the five conservation grant categories by implementing the proposed activities of this project.

Providing education and tools will impact both landowners/stewards as decision makers on any of these relevant topics as history and current reality shows that a lack of knowledge negatively impacts conservation. Touring and showing landowners in well managed woodlots will clearly show landowners the practical hands-on activities that they can do on their properties. In well managed woodlots economics (harvesting for sawmilling operation and other economical purposes), management with conservation focus such as riparian management, forest health and wildlife habitat, are incorporated and applied at the same time. Developing a BMP book will give landowners practical tools to make proper decisions. From experience, we know that these activities not just increase awareness among landowners/stewards but also increase their knowledge and ability to share experiences with others in achieving their goals. This cannot be achieved just in a class room setting, but has to be replenished through on the ground and on site learning.

## SUMMARY OF PROPOSED ACTIVITIES AND PROMOTION

AWES will deliver and perform the following activities with support of the project partner(s):

- Delivery of 30 workshops, tours and sessions across Alberta to promote Best forest management practices (BMP) and SFI to landowners and land managers;
- Develop a BMP pocket book that will be available in a digital format, website and hard copy to landowners & land managers. The pocket book will also be made available to WCSIC members who can utilize this in their daily operations, additional to the existing basic SFI wood producer information package;
- Establish 4 reforestation and afforestation demonstration sites showcasing BMP to landowners and public;
- Develop 9 fact sheets about BMP on various topics such as: afforestation & reforestation, harvesting, visual quality management, cooperative forest management, road establishment, management of harvest residue, control of invasive exotic plants and animals, management of riparian areas, conservation of critical wildlife habitat elements, biodiversity, threatened and endangered species, and forests with exceptional conservation value
- Promote and emphasize benefits of BMP and, ultimately, forest management certification through activities in the media. This will include new, additional content and updates on the AWES + WCSIC websites, 12 radio interviews, 12 articles in newspapers.

Although this is hard to quantify in this stage, AWES will communicate the project in many more ways and likely beyond the Provincial borders. This can be achieved by speaking in venues, write additional articles in branch magazines, and through engaging our existing strong partnerships with, for example, Alberta Agriculture and Rural Development.

## PROJECT GOALS

In the table underneath are the main project goals, outcomes and deliveries summarized of the AWES landowner outreach program, based on a three-year project term.

Project Goals	Actions	Tangible Outcomes	Measure Success	Grant Funds	In-Kind or Matching Funds
Increase awareness on SFI conservation categories	Through various workshops, field tours and sessions	Deliver 30 workshops /sessions, field tours covering almost all 5 categories	Reach over 1000 landowners through these actions	\$ 90,000	\$ 90,000
Alberta pocket book on BMP for woodlots	Develop digital and hard copy pocket book for woodlot owners	Alberta BMP pocket book	Digital and hard copy BMP booklet distributed through 30 sessions to all participants	\$ 20,000	\$ 20,000
Agroforestry and woodlot public demonstration sites	Find and establish sites. Develop virtual tours on these sites. Communicate sites in website, articles etc.	4 Demonstration sites developed that will outline forest management techniques and the intersection between healthy, managed forests and public benefits, clean air and water, wildlife habitat, other ecosystem functions, role of fire, pest, disease and climate change	Available to public and landowners hands –on practical site showing BMP	\$ 20,000	\$ 20,000
Promote and emphasize benefits of BMP and forest management certification through the use of media tools	Cooperate with SFI, Alberta forest industry and project partners to develop a consistent message in regards to forest certification and BMP to landowners and the general public	12 radio interviews 12 articles in local and province wide newspapers Develop AWES website content and updates on (SFI) certification	Increase the awareness of SFI and BMP province wide	\$ 25,000	\$ 25,000
Develop fact sheets on BMP	Write, develop fact sheets in accordance to SFI grant preference	9 fact sheets on selected topics such as: afforestation & reforestation, harvesting, cooperative forest management, road establishment, management of harvest residue, control of invasive exotic plants and animals, management of watersheds and riparian areas, conservation of critical wildlife habitat elements, biodiversity, threatened and endangered species, and forests with exceptional conservation value.	Information tools available to landowners to make better decisions	\$ 15,000	\$ 15,000

**PROJECT PLANNING 2014-2017 "AWES LANDOWNER OUTREACH PROGRAM"**

Goal	Activity:	Time frame	Delivery specification		
			2014-2015	2015-2016	2016-2017
Awareness	Organize Workshops, field tours and sessions	July-June	4 events		
	Organize Workshops, field tours and sessions	July-June		13 events	
	Organize Workshops, field tours and sessions	July-June			13 events
Woodlot pocket book	Gather technical information, write content	July-June		x	
	Process content into pocket book, arrange editorship and layout performance, release of pocket book, publication and distribution	July-June			x
Demo sites	Find, map +and establish demo sites	July-June	1 site	3 sites	
	Develop virtual tours, content, create extension panels, arrange installing panels	July-June		2 sites	2 sites
	Communicate site in websites, articles, apps, tours etc.	July-June		2 sites	2 sites
Fact sheets/ brochures	Develop fact sheets & brochures on Best forest management practices	July-June	2		
	Develop fact sheets & brochures on Best forest management practices	July-June		5	
	Develop fact sheets & brochures on Best forest management practices	July-June			2
(Media) promotion	Radio interviews + articles in local and Province-wide distributed newspapers	July-June	2 interviews 2 articles		
	Radio interviews + articles in local and Province-wide distributed newspapers	July-June		6 interviews 4 articles	
	Radio interviews + articles in local and Province-wide distributed newspapers	July-June			4 interviews 6 articles
	Develop content on forest certification, BMP update, project update on website	July-June	Announcement web content development	Update	Update

**PROJECT BUDGET**

Expenditure	SFI Grant Funds	Total Matching Funds	Source of Matching Funds* (AWES cash)	In-Kind Contributions*	Source of In-kind Contributions	Total per Expenditure category
Staff Salary and Benefits	\$ 31,666	\$ 25,666	\$ 25,666			\$ 57,333
Operating Costs						
Development of extension materials	\$ 5,000	\$ 10,000		\$ 10,000	AB agriculture, AWES and SFI members	\$ 15,000
Meetings	\$ 5,000	\$ 5,000		\$ 5,000	AWES and SFI member partners	\$ 10,000
Travel	\$ 7,000			\$ 0	AWES and SFI member partners	\$ 7,000
Education & Outreach	\$ 5,000	\$ 10,000		\$ 10,000	AWES and SFI member partners	\$ 15,000
Communications	\$ 3,000	\$ 6,000		\$ 6,000	AWES and SFI member partners	\$ 9,000
<b>Total \$ per year</b>	<b>\$ 56,666</b>	<b>\$ 56,666</b>	<b>\$ 25,666</b>	<b>\$ 31,000</b>		<b>\$ 113,333</b>
<b>Total 2014-2017</b>	<b>\$ 170,000</b>	<b>\$ 170,000</b>	<b>\$ 77,000</b>	<b>\$ 93,000</b>		<b>\$ 340,000</b>

**SFI Inc. Conservation & Community Partnerships Grant Program  
Grant Application for 2014 Grant Projects**

Organization Information

Lead Organization Name and Address	University of Arkansas 210 Administration Building Fayetteville, AR 72701-1201
Name, phone and email for Project Director	Dr. Andrew S. Nelson Phone: 870.460.1790 Email: <a href="mailto:NelsonA@uamont.edu">NelsonA@uamont.edu</a>
Lead Organizational Mission Statement (25 words or less)	The AFRC identifies strategies for establishing a balance between production of commodity and non-commodity forest values, and provides information on the sociological, environmental, and economic effects of forest management
Lead Organization Annual Operating Budget*	\$513,159,268
Two references (Name, Organization, email and phone) who can speak to the relevance and potential impact of the Project (these should not be the same as your Project partners):	Greg L. Hay Crop Production Services Email: <a href="mailto:greg.hay@cpsagu.com">greg.hay@cpsagu.com</a> Phone: 501.908.2255  William Holimon Arkansas Natural Heritage Commission Email: <a href="mailto:BillH@arkansasheritage.org">BillH@arkansasheritage.org</a> Phone: 501.324.9761

\*AFRC annual operating funds including support personnel, not including teaching dollars, grant dollars, or faculty salary.

Project Overview

Project Title	Total Length of time for completion of project (in months, from commencement to final reporting)	Amount Requested from SFI	Total Project Budget (including matching funds and in-kind contributions) *	Brief Project Summary (50 words or less)	What element(s) of the SFI 2010-2014 Program are addressed by your Project? (Please cite the Standard Component(s))
Conservation and management challenges of eastern baccharis, a rapidly expanding invasive native shrub	36 months	\$102,411	\$210,033	This project will examine the causes and potential consequences of EB invasion across the WGCP through literature reviews and empirical observations. We plan outreach to draw attention to the problem and present solutions. Results should improve the conservation of forests and help landowners meet SFI reforestation requirements.	<b>Principle 1</b> – Sustainable Forestry <b>Principle 2</b> – Forest Productivity and Health <b>Principle 10</b> – Research <b>Principle 11</b> – Training and Education

\*Includes UA unrecovered indirect costs specified as matching funds.

Project Partners

Confirmed Project Partners	Primary Contact Name & Title	Complete Contact Information	Brief Summary of Individual's and Organizations Qualifications and Experience (150 words or less per partner)
United States Department of Agriculture, Forest Service	Dr. Don C. Bragg Research Forester	Southern Research Station P.O. Box 3516 UAM Monticello, AR 71656 Phone: 870.367.3465 Email: <a href="mailto:dbragg@fs.fed.us">dbragg@fs.fed.us</a>	BS & MS Forestry; PhD Forest Ecology; 14 years as a research scientist with US Forest Service (USFS) in southern Arkansas; experience in southern pine silviculture, disturbance ecology, biomass modeling; published >80 research papers and technical reports; given >100 professional presentations; co-PI or collaborator on >\$900K in competitive grants. Work for the USFS, the largest forestry research organization in the world. USFS has office and lab facilities in Arkansas; staff to provide support in data collection; a wide range of research equipment.
Plum Creek Timber Company	Mr. Richard Stich, Senior Wildlife Biologist	P.O. Box 717 128 Main St. Crossett, AR 71635 Phone: 870.567-5018, 870-510-5254 (mobile) Email: Richard.stich@plumcreek.com	Plum Creek Timber Company is a major forest landowner in the South. The company uses a variety of silvicultural systems to manage and harvest southern pine species. Richard manages SFI programs and compliance on company lands in AR, LA, TX and OK. He interacts with company silviculturists to investigate issues related to forest management and helps develop strategies that address the issues while maintaining compliance with company environmental policies and the SFI Standard.
Arkansas Forest Resources Center, Cooperative Extension Service	Dr. Tamara Walkingstick Associate Director	Little Rock State Office 2301 S. University Ave. Little Rock, AR 72204 Phone: 501.671.2346 Email: <a href="mailto:twalkingstick@uaex.edu">twalkingstick@uaex.edu</a>	PhD. Forest Economics; M.S. and B.S. 18 years as associate professor of forestry extension. Provide leadership in selecting, planning, developing, implementing, and evaluating educational programs focusing on forest management and issues important to forestry in Arkansas. Provide state and county Extension staff with the latest forest management research findings and offer support in the application of these findings to landowner forest management concerns. Provide administrative support for the management and operations of extension programs, and collaborative development and implementation of policies and procedures regarding extension programs.

Arkansas Forest Resources Center, University of Arkansas, Division of Agriculture	Dr. Joshua Adams Assistant Professor	School of Forest Resources University of Arkansas at Monticello P.O. Box 3468 110 University Ct. Monticello, AR 71656 Phone: 870.460.1348 Email: AdamsJ@uamont.edu	Dr. Adams is experienced in field sampling in forests and in the implications of silviculture and forest management. He currently teaches the undergraduate biometrics and graduate statistics class involving sampling. He also has experience in the ecology and genetics of a range of plants that exhibit evolutionary defense phenotypes such as hyper-accumulators.
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### Background

Forests in the southern states accounted for nearly 60% of timber harvests in the US in 2012, derived primarily from pine plantations that occupy approximately 40 million acres (Wear and Greis 2012). Anything that threatens the ability of these forests to maintain high productivity also threatens the long-term regional economic and ecological sustainability, which is highly dependent on a robust timber industry. While many different factors may influence the distribution and health of southern forests (e.g., Wear and Greis 2012), invasive species are of such concern to regional planners as to merit multiple chapters in a recent synopsis of expected future conditions (Miller et al. 2013, Duerr and Mistretta 2013).

Exotic invasive species, particularly those that can aggressively spread and impact commercially valuable landscapes, have long been subject to control and elimination treatments by government agencies and landowners (e.g., Miller et al. 2010). Invasive exotic species are troublesome in that their spread is largely unchecked as non-native regions lack the controlling agents found in native distributions (Miller et al. 2010). Coupled with the autecological adaptations of these invaders and the environmental conditions present, exotic species can drastically alter ecosystem behavior and reduce possible goods and services, thereby impacting ecosystem sustainability at enormous biological and economic cost (e.g., Pimentel et al. 2005). Recent invasive plant species treatments in the southern US have focused almost exclusively on numerous non-native threats (e.g., Miller 2003, Miller et al. 2010), but a number of native species also behave similar to exotics and negatively impact economic and ecological sustainability. Changes in land use practices, disruption of natural environmental conditions, altered disturbance regimes, and a varying climate have all contributed to this “new” class of invasives. Unfortunately, native invasives rarely draw the same degree of attention as exotic invasives, even though they may also have dramatic environmental consequences—their native status helps them evade certain detection and control programs that focus on introduced species, and much less research on native invasives has been conducted.

A classic example of a native invasive species can be found in eastern baccharis (EB) (*Baccharis halimifolia*). EB is a large (up to 20 ft tall) deciduous shrub native to the upper fringes of seasonally flooded tidal fresh water and brackish marshes along the Atlantic and Gulf Coasts from Massachusetts to Florida, and west to Oklahoma (Miller and Skaradek 2002). EB is invasive in other parts of the world where it has been introduced; today EB is increasingly being encountered on atypical sites across the southeastern United States, including young southern pine plantations and abandoned agricultural fields in the West Gulf Coastal Plain (WGCP) (Miller and Skaradek 2002, Ervin 2009). EB has a number of attributes that have made it particularly successful in expanding its distribution in recent years—in addition to its tolerance of a wide range of site conditions, EB quickly produces large quantities of wind-transported seeds that can spread widely onto disturbed sites, allowing it to colonize favorable sites rapidly (Miller and Skaradek 2002).

### The Challenges Posed by EB

EB can survive a number of disturbances (e.g., floods and fires), is rarely browsed due to toxic chemicals in its tissues, and is resistant to many chemical and mechanical control options, making it is hard to eliminate from a site once established (Kraft and Denno 1982, Ervin 2009, Gann et al. 2012). A shade intolerant, relatively low stature species, EB generally disappears from forested sites following canopy closure but it can persistent in some locations (e.g., along roads, landing sites, small wetlands, and in pockets with tree regeneration failures) if sufficient light resources remain, permitting recolonization following later management activities. In many naturally regenerated stands, silvicultural practices typically produce a cohort of new tree recruits (and more shade-tolerant shrubs and other understory plants) prior to final overstory removal, which likely inhibited EB invasion. However, a large proportion of upland sites in the WGCP are clearcut, site prepped, and then planted in loblolly pine—a process that results in a high light environment and abundant favorable substrates for EB germination for 2-3 years following site preparation and planting (assuming no post-planting competition control) (Figure 1). EB can also be a problem in getting hardwood stands established, particularly since the herbicides used to control it tend to be detrimental to the desired species (Gann et al. 2012).

In addition to the silvicultural challenges posed by EB, it is also toxic to sheep, cattle, and probably other kinds of livestock and is considered a fairly poor white-tailed deer (*Odocoileus virginianus*) browse species (Loewenstein and Enloe n.d., Miller and Skaradek 2002). The toxins in EB are also problematic for many herbivorous insects (e.g., Kraft and Denno 1982), perhaps negatively impacting native invertebrates that may be important food sources and pollinators. EB can also displace native graminoids, thereby changing habitat structure and influencing avian community response (Arizaga et al. 2013). These ecological impacts suggest that extensive EB spread could displace species with a greater vegetative or wildlife value, making it of potential conservation concern. Given that the species is native to the region and landowners have yet to report widespread reforestation failures attributed to invasion, very little emphasis has been placed on studying possible causes and consequences of invasion. EB invasions will likely continue since the species can establish on a variety of sites, and the increasing trend towards land management with shorter harvest rotations and greater areas of open canopy cover. Although EB is not currently recognized as a problem species for the conservation of native ecosystems and reforestation efforts, EB spreading well outside its native range suggests the likelihood exists in the future. Without a good understanding of why the species is becoming more prevalent on certain sites, and appropriate methods to combat invasion, serious negative consequences are possible that may require alteration of land management practices under SFI protocols.



Figure 1. Example of Eastern baccharis (EB) invasion in a young loblolly pine plantation in Ashley County, Arkansas on November 12, 2012. EB is easily identified on this Google Earth image by the white-light green flowers that appear in late autumn against the background of dark green pine seedlings.

### Methodology

Causes and consequences of EB spread to atypical sites in the US is still unknown. Therefore we will take a three-part approach to address this issue by (i) obtaining a better understanding of the species' autecology and response to disturbance, (ii) examining the potential negative effects of EB invasion to forest conservation and reforestation efforts, and (iii) disseminating information to diverse audiences throughout the region about the spread of EB and potential management approaches.

### Phase 1: Literature review

We will prepare a literature review of the autecology of EB that will address morphological, physiological, and phylogenetic traits, preferred habitat, patterns and causes of invasion into non-native ecosystems, phytotoxic effects, and response to disturbance. We will rely on observational and manipulative studies conducted in North America, and also in regions where the species has become an invasive exotic species, including Western Europe and Australia. This synthesis will be the most comprehensive treatment yet of this emerging native invasive species, and will provide the context for presenting information regarding the impacts of invasion through outreach activities.

### Phase 2: Field work

All field-based activities will take place on Plum Creek Timber Company land in southern Arkansas to minimize travel costs. We will work with Plum Creek land managers to select appropriate sites for the EB exclusion study. The graduate student, field technician, and Project Partners will be involved in the implementation of the study including the removal of EB. The Project Director will supervise the graduate student to ensure proper analytical techniques and interpretation of results. The graduate student will be given the opportunity to be the lead author on the peer-reviewed publication under guidance of the Project Director.

Three recently planted (2-3 years old) plantations will be selected with EB cover >30% across the stand. Four EB treatments will be tested, including 0%, 33%, 66%, and 100% EB retained cover. Treatments will be replicated three times using 0.25-ac treatment plots located across each stand. A 0.10-ac measurement plot will be nested within the center of each 0.25-ac treatment plot, where the basal diameter 2 inches above the root collar (nearest 0.1 in), height (nearest 0.1 in), and maximum crown width (nearest 0.1 in) of pine seedlings will be measured prior to treatment and for two consecutive years following treatment. The response of EB to the treatments will also be assessed with estimates of percent cover and stem density. To minimize damage to pine seedling and ensure control of EB, mechanical methods combined with stump herbicide treatments will be applied. Felled EB will be used to develop biomass equations and determine EB stem age as a function of basal diameter, both of which can be used to model EB impacts on pine stands. These initial results can then be used to seek additional funding to further explore functional traits of EB and environmental conditions that may facilitate invasion. Possible examples of future projects include landscape-level analyses of changes in EB cover in relation to land management and silvicultural practices using remote sensing technology and analysis of historic aerial photos.

### Phase 3: Knowledge transfer

Information gathered for the review and data generated from the experimental manipulation study will be used to develop field days, workshops, and outreach materials. The Project Director will work with the Project Partners to ensure broad audiences are reached, including land owners, forest managers, conservation groups, lawmakers, and the general public. Outreach activities will draw attention to the conservation-related consequences of invading EB, including potential effects on the functionality and health of both pine plantations and native ecosystems in the WGCP. Additional programs will also be developed to discuss potential influences of invasion on reforestation and forest management perspectives, including potential silvicultural strategies, to be provided in regional trainings, professional meetings (e.g., Society of American Foresters and Arkansas Forestry Association meetings), and other outlets (e.g., field days, audio and video podcasts, and webinars). Established infrastructure available through the University of Arkansas, Division of Agriculture Cooperative Extension Service will be used as the primary platform to reach these diverse audiences. In addition to directed outreach activities, this may include the preparation of Extension publications. Finally, a management guide will be developed to assist landowners and forest managers determine situations where EB cover warrants control and outline potential control techniques. The management guide will be developed as a US Forest Service General Technical Report similar to Miller et al. (2010) and as a Cooperative Extension publication. The network of Project Partners and the Project Director will work collaboratively on the design of the outreach programs and tangible documents.

### Project Impact

Visual observations by the Project Partners and forest managers suggest that EB is rapidly spreading into areas of the WGCP where it was not commonly observed. Reasons for the species' spread and potential ramifications for native ecosystems and forested systems are still unknown. Therefore, the major impact of this project will be a refined understanding about the potential causes and consequences of invasion across the WGCP, and the development of tools to mitigate invasion. Although we know the species is spreading, we cannot confirm that it is hindering reforestation efforts required by SFI to maintain certification. The results from the experimental manipulation study will be able to provide data to either confirm or reject our hypothesis that EB can competitively exclude planted pine seedlings and decrease pine growth. If our hypothesis is confirmed, additional silvicultural treatments may be warranted. This may require that SFI certified landowners work with SFI to ensure refined management regimes still meet the requirements

for certification, including SFI Standard Performance Measure 2.2. that “Program Participants shall minimize chemical use required to achieve management objectives...”

This project has the potential to widely impact management practices. There are almost 3.7 million acres of SFI certified forests in Arkansas, Louisiana, Oklahoma, and Texas, most of which are found in the productive pine-dominated landscapes of the WGCP. Most major SFI-certified landowners and timberland managers including Plum Creek Timber Company, Weyerhaeuser Corporation, Deltic Timber Corporation, Hancock Forest Management, Molpus Timberlands Management, Rayonier USFR, Resource Management Services, and the Campbell Group use silvicultural practices that may be susceptible to EB and other woody competitors that establish post-planting. If EB has increasing impacts on the commercial timberlands of this region, productivity will likely decline and expenses of management increase. SFI-fostered conservation gains may also suffer under regional expansion of EB by threatening unique species and habitats through displacement of preferred alternatives and the impairment of desired ecosystem functionality.

#### Project Relation to SFI-related Conservation Goals

This project will examine the possible causes and conservation-related consequences of EB invasion into WGCP forests. This overall goal most closely aligns with SFI’s Forest Health conservation category. In particular, the project will inform sub-categories 2 (intersection between healthy, managed forests and public benefits) and 3 (the role of pests). EB invasion poses a threat to maintaining forest health in managed forests by altering ecosystem functioning and potentially impacting wood supplies by inhibiting reforestation efforts. A comprehensive understanding of the autecology of EB and potential negative consequences for reforestation efforts will help illustrate the role of SFI in promoting Standard Principle 2: “...to protect forest from economically or environmentally undesirable levels of wildfire, pests, diseases, *invasive exotic plants and animals* and other damaging agents and thus maintain and improve *long-term forest health and productivity*”. Although not explicitly mentioned in Principle 2, invasion by native species can produce similar negative effects on ecosystem functioning as invasive exotic plants. There is a lack of quantitative data on the impacts of EB invasion to new sites in the region—our understanding is largely anecdotal, limiting our ability to understand the relevant conservation and ecosystem service implications.

This project will also help inform SFI’s Standard Principle 1: “To practice sustainable forestry...that integrates reforestation and the managing, growing, nurturing and harvesting of trees for useful products and ecosystem services...” Results from the EB exclusion study will help answer questions regarding effects on pine seedling survival and growth, and the implications for reforestation efforts. SFI is committed to the perpetuation of forest cover, and EB invasion may hinder this goal. Future refinement of SFI Standards may benefit from the results of this project by drawing attention to the conservation-related implications of native plant species invasion, and providing quantitative data to demonstrate negative effects on reforestation efforts across substantial acreage of SFI certified land in the WGCP.

#### Activities to Promote Project Outcomes

Project Partners, forest landowners, and cooperating conservation organizations in the region will collaborate to ensure maximum impact from the autecology review, manipulation exclusion study, and outreach activities. We will meet frequently throughout the project to ensure planning, implementation, and synthesis activities remain on-track. The Project Director will assume responsibility for organizing meetings and ensuring all Project Partners and SFI remain informed on the progress of the project throughout the duration.

Outreach activities will be coordinated through the University of Arkansas, Division of Agriculture Cooperative Extension, including identifying target audiences for programs. Field tours will be developed to visit the experiment sites on Plum Creek lands to showcase the results of the project. Field tours and workshops will be developed collaboratively among the Project Partners to ensure that the results of the project are highlighted, including conservation-related impacts on native plant communities and management-related impacts including reforestation efforts and maintenance of forest cover across the region.

Project Goals

Project Goals	Actions	Tangible Outcomes	Measure Success	Grant Funds	In-Kind or Matching Funds
Review the autecology of EB in North America and where the species is an invasive exotic	Search the literature on functional traits and response to disturbance; prepare a peer-reviewed autecology summary	Peer-reviewed journal publication  Provide guidance to understand potential causes of invasion	Final preparation and submission of review to peer-reviewed journal	\$6,000	\$2,790 (UA indirect)
Quantify the effect of different levels of EB cover on pine seedling growth and survival	Implement a study that experimentally manipulates EB densities and examines resulting survival and growth of planted pine seedlings	M.S. thesis at UAM  Peer-reviewed publication(s) documenting results of EB exclusion on pine productivity  Substantial acreage affected by guiding reforestation efforts	Completed thesis and submitted publications.  Integration of results by landowners into reforestation and silviculture programs	\$76,411	\$60,000 (Plum Creek)  \$35,531 (UA indirect)
Develop outreach programs that synthesize results from autecology review and exclusion study to reach broad audiences	Conduct field tours and workshops for forest managers, landowners, conservationists, lawmakers, and general public  Prepare Field Notes and management guides to improve understanding of EB invasion	Multiple groups educated about problems of EB invasion and potential management solutions	Tours and workshop attendance  Participant surveys  EB management on Plum Creek, other SFI and non-SFI managed lands, including for the conservation of native ecosystems	\$20,000	\$9,300 (UA indirect)

Project Timeline (Project Begins June 2014)

September 2014

- Select sites for EB manipulative removal study
- Collect pre-treatment data on EB density and percent cover and pine seedling measurements
- Apply EB cover reduction treatments

June 2015

- Submission of EB autecology for publication

September 2015

- Collect 1<sup>st</sup> year post-treatment pine seedling measurements

December 2015

- Conduct tours and workshops based on results from autecology review

September 2016

- 2<sup>nd</sup> year post-treatment pine seedling measurements

December 2016

- Develop Extension publications and Management Guides for EB

June 2017

- Conduct field tours and workshops that integrate causes of invasion based on autecology review, consequences of invasion for reforestation, and management strategies to reduce EB invasion.
- M.S. thesis finalized and defended
- Submit EB exclusion peer-reviewed manuscript(s) for publication

Project Budget

Expenditure	SFI Grant Funds	Total Matching Funds	Source of Matching Funds	In-Kind Contributions	Source of In-kind Contributions	Total per expenditure category*
M.S. Graduate student (stipend, tuition, and fringe)	\$51,312					\$51,312
Field Technician Pay and Fringe	\$12,770					\$12,770
Field-work travel	\$7,680					\$7,680
Study Implementation Expenses				\$60,000 <sup>1</sup>	Plum Creek Timber Company	\$60,000
Travel for Partner organizational meetings	\$1,449					\$1,449
Professional meetings travel	\$3,000					\$3,000
Material and supplies	\$6,200					\$6,200
Education & Outreach	\$15,000					\$15,000
Publishing costs	\$5,000					\$5,000
<b>Total</b>	<b>\$102,411</b>	<b>\$47,622</b>	<b>Unrecovered Indirect Costs</b>	<b>\$60,000</b>		<b>\$162,411</b>

\*Does not include UA unrecovered indirect costs since these will not be received.

<sup>1</sup> Includes ~\$300/ac for treatments for 3 stands averaged 50 acres each, plus field visits, implementation planning with Project Partners, and GIS work.

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Pimentel, D., R. Zuniga, and D. Morrison. 2005. Update on the environmental and economic costs associated with invasive species in the United States. *Ecological Economics* 52(3):273-288.

Wear, D.N. and J.G. Greis. 2012. *The Southern Forest Futures Project: summary report*. Asheville, NC: US For. Serv. Gen. Tech. Rep. SRS-168. 54 p.

**SFI Inc. Conservation & Community Partnerships Grant Program Request for Proposals  
Grant Application**

Lead Organization Name and Address	Alabama Forestry Foundation (AFF)
Name, phone and email for Project Director	Chris Isaacson / 334-481-2124 / <a href="mailto:cisaacson@alaforestry.org">cisaacson@alaforestry.org</a>
Lead Organizational Mission Statement (25 words or less)	To promote forestry in Alabama, provide information about sustainable forest management, and to enhance the understanding of the role forests play in society.
Lead Organization Annual Operating Budget	\$540,000
Two references (Name, Organization, email and phone) who can speak to the relevance and potential impact of the Project (these should not be the same as your Project partners):	Ben Smith / MeadWestvaco Corporation / <a href="mailto:ben.smith@mww.com">ben.smith@mww.com</a> / 334-855-5627 Grover Allgood / McShan Lumber Company <a href="mailto:allgood77@gmail.com">allgood77@gmail.com</a> / 205-375-6277

Project Overview

Project Title	Total Length of time for completion of project (in months, from commencement to final reporting)	Amount Requested from SFI	Total Project Budget (including matching funds and in-kind contributions)*	Brief Project Summary (50 words or less)	What element(s) of the SFI 2010-2014 Program are addressed by your Project? (Please cite the Standard Component(s))
Improving Wildlife Habitat Through Forest Management Practices	24 months	\$60,000	\$83,000	Develop DVD-based educational material for landowners, foresters and loggers demonstrating how forest management practices can be used to improve wildlife habitat and promote biological diversity. Material will be developed for two states and will be produced in a way it can be used in other	Objective 1 – Forest Management Planning (PM 1.1) Objective 2 – Forest Productivity (PM 2.1) Objective 4 – Conservation of Biological Diversity (PM4.1) Objective 8 – Landowner Outreach (PM 8.1) Objective 16 – Training & Education (PM 16.2)

				southern states.	Objective 17 – Community Involvement in the Practice of Sustainable Forestry (PM 17.1)
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Project Partners

Confirmed Project Partners (list organization name only)	Primary Contact Name & Title	Complete Contact Information (Email, Phone Number, Mailing Address)	Brief Summary of Individual's and Organizations Qualifications and Experience (150 words or less per partner)
Mississippi Forestry Association (MFA)	Tedrick Ratcliff, Executive Vice President	<a href="mailto:tratcliff@msforestry.net">tratcliff@msforestry.net</a> (601) 354-4936 620 North State Street Suite 201 Jackson, MS 39202	Founded in 1938, MFA represents a broad range of members of Mississippi's forestry community including landowners, foresters and loggers. MFA promotes environmental stewardship & community understanding of the role forestry plays in Mississippi's economy through advocacy and education programs. Ratcliff is a forester with experience in developing training and education programs.
The Westervelt Company (TWC)	Jim King, Vice President of Natural Resources	<a href="mailto:jimking@westervelt.com">jimking@westervelt.com</a> (205) 562-5207 P.O. Box 48999 Tuscaloosa AL 35404	Founded in 1884, Westervelt's business includes wildlife management services, lumber and pellet manufacturing, ecological restoration services and mitigation banking. Westervelt is an active <u>SFI program participant</u> with more than 500,000 acres certified in Alabama and Mississippi. Various personnel (Registered Foresters and Wildlife Biologists) will participate.

Rayonier	Jeff Ledbetter, Alabama Resource Unit Leader	<a href="mailto:jeff.ledbetter@rayonier.com">jeff.ledbetter@rayonier.com</a> (334) 427-9676 1833-B East Three Notch St Andalusia, AL 36421	Organized as a Real Estate Investment Trust, Rayonier is one of the largest private landowners in the U.S., owning, leasing or managing approximately 2.7 million acres of working foests in the U.S. and New Zealand to supply timber to a wide variety of markets. As an active <u>SFI program participant</u> , Rayonier's foresters sustainably manage their land base by SFI Program Standards. Various personnel will participate.
Alabama Loggers Council (ALC)	Ray Clifton, Executive Director	<a href="mailto:rclifton@alaforestry.org">rclifton@alaforestry.org</a> (334) 481-2130 555 Alabama Street Montgomery AL 36104	The Alabama Loggers Council (ALC) provides both education and advocacy for Alabama loggers. ALC conducts both initial logger training required for SFI program participants and continuing education programs. Clifton is a Registered Forester with 25 years progressive experience in land management, procurement, and training. He has worked with landowners throughout his career assisting with management plans, harvest planning and reforestation.
Alabama Tree Farm Committee (ATFC)	Karen Boyd, State Tree Farm Coordinator	<a href="mailto:kboyd@alaforestry.org">kboyd@alaforestry.org</a> (334) 265-8733 555 Alabama Street Montgomery AL 36104	Boyd has 30 years progressive experience land management, procurement and forest certification. She has developed and supported 5 certified forest management groups and seven chain of custody suppliers. She has also

			<p>recruited landowners, prepared management plans, maintained records and managed audits for a 35,000 acre company-sponsored forest management group. She has previously served as Vice Chairman of the Alabama SFI State Implementation Committee and as District Director for the Alabama Tree Farm Committee.</p>
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Project Overview

In the southern United States, active wildlife management is accomplished primarily by managing the habitat wildlife species depend on. Therefore, active forest management is, in fact, wildlife management. If landowners, foresters, and loggers understand how forest management practices impact wildlife habitat, whether game, non-game, or species of special concern, they can better adjust or adapt those practices to enhance the habitat or mitigate the impact. This project will develop the tools needed to educate landowners, foresters and loggers about the impact of forest management practices on wildlife and ways they can adapt those practices to enhance wildlife habitat and promote biological diversity. The video footage will highlight ways SFI program participants are managing forests with wildlife impacts in mind and will be used to develop specific DVDs and guidebooks for three distinct audiences: landowners, foresters, and loggers. The material in this project will be leveraged in the following ways: (1) video footage will be filmed in Alabama and Mississippi but will be produced in such a way it can be “branded” and used by other southern states, (2) raw video footage will be archived and will be available for use in developing additional training and education programs, (3) material will be used to encourage “non-traditional” landowners (who believe harvesting timber is incompatible with wildlife management) to begin to practice sustainable forest management, and (4) material produced will be used to recruit non-traditional landowners into the Tree Farm program to ensure a continued connection to resource professionals who will be available to provide additional assistance over time, (5) project participants will utilize existing networks in both states (Tree Farm, County Forestry Associations) to disseminate material.

Supporting the Standard

This project will support a number of requirements of the SFI 2010-2014 Standard relating specifically to increasing sustainable forest management. These include: Objective 1 – “To broaden the implementation of sustainable forestry” and Objective 2 – “To ensure long-term forest productivity, carbon storage, and conservation of forest resources”; Objective 4 – “To manage the quality and distribution of wildlife habitats and contribute to the conservation of biological diversity” at the “stand and landscape level”; Objective 16 – “To improve implementation of sustainable forestry practices through appropriate training and education programs”. This project will also support requirements in Objective 8 – “To broaden the practice of sustainable forestry” specifically by “provid(ing) information to landowners for protection of important habitat elements”. In addition, the

project addresses Objective 17 – “To broaden the practice of sustainable forestry” by “apply(ing) principles of sustainable forest management”.

Program Activities

Following are activities that will be performed to complete the project:

1. Using input from project partners, AFF staff will develop an outline for video / guidebooks for 3 distinct target audiences: landowners, foresters, and loggers.
2. Locations for shooting video footage will be identified on SFI program participant lands in Alabama and Mississippi. Sites will be chosen that are similar to landscapes that might be found in other southern states to ensure material can be used by other state associations.
3. Production company will be engaged to shoot video and produce final video products.
4. AFF / ALC staff will develop guidebooks that will accompany video with input from project partners.
5. Guidebooks / DVDs will be reproduced for distribution. Material will be “branded” for each state to facilitate acceptance by target audiences.
6. AFF / ALC staff will develop online programs for each target audience utilizing project material to facilitate wider distribution.
7. Education material will be distributed by project partners to target audiences through various outlets available (Tree Farm, County Forestry Associations, landowner groups, logger education programs, etc.) ATFC will use material to target forest owners with recreation-based objectives for participation in the Tree Farm program.
8. Education programs will be held using project material for landowner (4) and loggers (10).
9. AFF staff will promote on-line program to target audiences throughout the south using existing promotion networks.
10. AFF staff will promote availability of material to other southern state associations and will work with interested states to “rebrand” the material for those states.
11. AFF will report results.
12. AFF will communicate success of program / promote sustainable forest management.

Project Details

Project Goals	Actions	Tangible Outcomes	Measure Success	Grant Funds	In-Kind or Matching Funds
Develop Education / Outreach Material	-Develop outline videos/guidebooks	-Outline	-Completed	\$0	\$1,500
	-Identify shooting locations	-Location map / shooting schedule	-Completed	\$500	\$5,200
	-Shoot footage / produce videos	-Reproduction-ready video	-Completed	\$30,500	\$4,000
	-Develop guidebooks	-Reproduction-ready guidebooks	-Completed	\$0	\$2,500
	-Reproduce DVDs / guidebooks	-DVDs / Guidebooks:	-Completed	\$20,000	\$0

		Alabama (2000) Mississippi (2000)			
	-Produce and publish on-line education programs	-3 on-line programs – landowner, forester, and logger	-Completed	\$0	\$2,000
Distribute Education / Outreach Material	-Distribute DVDs / guidebooks in Alabama and Mississippi	-Material available to SFI companies, landowner/logger organizations	- Completed	\$0	\$3,200
	-Conduct education programs	-4 landowner programs / 10 logger programs	-Educated participants: landowners, foresters, loggers	\$9,000	\$3,600
	-Promote on-line programs	-Promotion ads, emails, etc.	-Minimum 200 views	\$0	\$500
	-Make material available / promote to other southern states	-Letters / emails / presentations	-2 additional states pick up material for their use	\$0	\$500

Project Timeline

- Develop outlines for video / guidebooks April-May
- Identify shooting locations May-June
- Produce videos June-December
- Develop guidebooks December-February (2015)
- Reproduce guidebooks / DVDs March
- Produce on-line program March
- Distribute DVD-guidebooks April-December
- Conduct education programs April-December
- Promote online program April-December
- Promote material to southern state assns July-August
- Final report March

Project Budget

Expenditure	SFI Grant Funds	Total Matching Funds	Source of Matching Funds*	In-Kind Contributions*	Source of In-kind Contributions	Total per expenditure category
<b>Staff Salary and Benefits</b> (please list budget amount individually per	\$0	K. Boyd - \$6,800	Alabama Forestry Foundation	T. Ratcliff - \$2,300 Company	Mississippi Forestry Association Westervelt	\$20,600

staff person)				foresters biologists \$2,000		
				Company foresters \$2,000	Rayonier	
				R. Clifton - \$5,500	Alabama Loggers Council	
				Volunteer committee members - \$2,000	Alabama Tree Farm Committee	
<b>Operating Costs</b>						
Video Production	\$30,000					\$30,000
DVD / Guidebook Reproduction	\$20,000					\$20,000
Distribution Costs DVD / Guidebooks	\$0	\$200	Alabama Forestry Foundation	\$200	Mississippi Forestry Association	\$400
Education Events- Room Rental, AV, Refreshments	\$9,000					\$9,000
Travel	\$1,000	\$600	Alabama Forestry Foundation	\$200  \$200 \$200 \$600  \$200	-Mississippi Forestry Association -Westervelt -Rayonier -Alabama Loggers Council -Alabama Tree Farm Committee	\$3,000
<b>Total</b>	<b>\$60,000</b>	<b>\$7,600</b>		<b>\$15,400</b>		<b>\$83,000</b>

\*list sources and amounts of any matching funds or in-kind contributions for each project partner

Agreement to Public Communications

I, Chris Isaacson, Executive Vice President, as a representative of Alabama Forestry Foundation and a Partner in Improving Wildlife Habitat Through Forest Management Practices, hereby give the Sustainable Forestry Initiative® (SFI), Inc. permission to use my name, the organization name as written above, and any other information about the Project in public communications regarding the Project.

I understand that public communications include, but are not limited to:

- Press releases and announcements regarding the SFI® Inc. Conservation and Community Partnerships Grant Program.
- Public presentations, fact sheets, briefing notes and other communication materials that highlight successful Projects and the SFI Inc. Conservation and Community Partnerships Grant Program.
- Use of the Organization logo on the SFI Inc. website, on news releases or other materials.
- Other materials as appropriate.

SFI Inc. will not attribute quotes or opinions to my organization without permission.

With my signature below, I attest that, to the best of my knowledge, the information provided in this application is true and accurate, and I am authorized by Alabama Forestry Foundation to sign this agreement.

Signed:



Executive Vice President  
ALABAMA FORESTRY FOUNDATION

February 18, 2014

**SFI Inc. Conservation & Community Partnerships Grant Program Request for Proposals  
Grant Application**

Lead Organization Name and Address	American Forest Foundation (AFF)
Name, phone and email for Project Director	Chris Isaacson / 334-481-2124 / <a href="mailto:cisaacson@alaforestry.org">cisaacson@alaforestry.org</a>
Lead Organizational Mission Statement (25 words or less)	To promote forestry in Alabama, provide information about sustainable forest management, and to enhance the understanding of the role forests play in society.
Lead Organization Annual Operating Budget	\$540,000
Two references (Name, Organization, email and phone) who can speak to the relevance and potential impact of the Project (these should not be the same as your Project partners):	Ben Smith / MeadWestvaco Corporation / <a href="mailto:ben.smith@mww.com">ben.smith@mww.com</a> / 334-855-5627 Grover Allgood / McShan Lumber Company <a href="mailto:allgood77@gmail.com">allgood77@gmail.com</a> / 205-375-6277

Project Overview

Project Title	Total Length of time for completion of project (in months, from commencement to final reporting)	Amount Requested from SFI	Total Project Budget (including matching funds and in-kind contributions)*	Brief Project Summary (50 words or less)	What element(s) of the SFI 2010-2014 Program are addressed by your Project? (Please cite the Standard Component(s))
Promoting Stewardship and Expanding Forest Certification in High Priority Landscapes in Alabama	12 months	\$30,000	\$64,300	Project will leverage resources of sponsors and partners to promote sustainable management, enhance forest productivity, promote biological diversity, and increase forest certification across Alabama. Project will target landowners located in ecologically	Objective 1 – Forest Management Planning (PM 1.1) Objective 2 – Forest Productivity (PM 2.1, 2.3) Objective 4 – Conservation of Biological Diversity (PM4.1) Objective 8 – Landowner Outreach (PM 8.1) Objective 17 – Community Involvement in the Practice of

				important landscapes and key watersheds around the state.	Sustainable Forestry (PM 17.1)
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Project Partners

Confirmed Project Partners (list organization name only)	Primary Contact Name & Title	Complete Contact Information (Email, Phone Number, Mailing Address)	Brief Summary of Individual's and Organizations Qualifications and Experience (150 words or less per partner)
Alabama Tree Farm Committee (ATFC)	Karen Boyd, State Tree Farm Coordinator	<a href="mailto:kboyd@alaforestry.org">kboyd@alaforestry.org</a> (334) 265-8733 555 Alabama Street Montgomery AL 36104	Boyd has 30 years progressive experience with Champion / IP in land management, procurement and forest certification. She has developed and supported 5 certified forest management groups and seven chain of custody suppliers. She has also recruited landowners, prepared management plans, maintained records and managed audits for a 35,000 acre company-sponsored forest management group. She has previously served as Vice Chairman of the Alabama SFI State Implementation Committee and as District Director for the Alabama Tree Farm Committee.
The Westervelt Company (TWC)	Jim King, Vice President of Natural Resources	<a href="mailto:jimking@westervelt.com">jimking@westervelt.com</a> (205) 562-5207 P.O. Box 48999 Tuscaloosa AL 35404	Founded in 1884, Westervelt's business includes sporting lodges in Alabama and New Zealand, wildlife management services, lumber and pellet manufacturing, real estate, ecological restoration services and mitigation banking. Westervelt is an active <u>SFI program participant</u> with more than

<p>Alabama Loggers Council (ALC)</p>	<p>Ray Clifton, Executive Director</p>	<p><a href="mailto:rclifton@alaforestry.org">rclifton@alaforestry.org</a> (334) 481-2130 555 Alabama Street Montgomery AL 36104</p>	<p>500,000 acres certified in Alabama and Mississippi. Company employees have been actively involved in the Tree Farm Committee. Various personnel (Registered Foresters and Wildlife Biologists) will participate.</p> <p>The Alabama Loggers Council (ALC) provides both education and advocacy for Alabama loggers. ALC conducts both initial logger training required for SFI program participants as well as continuing education programs. Clifton is a Registered Forester with 25 years progressive experience in land management, procurement, and training and education. He has worked extensively with landowners throughout his career assisting with management plans, harvest planning and reforestation.</p>
<p>Alabama Forestry Association (AFA)</p>	<p>Chris Isaacson, Executive Vice-President</p>	<p><a href="mailto:cisaacson@alaforestry.org">cisaacson@alaforestry.org</a> (334) 481-2124 555 Alabama Street Montgomery AL 36104</p>	<p>Formed in 1949, the Alabama Forestry Association (AFA) exists to promote sustainable forest management in Alabama and advocate for the forestry community at the local, state and federal level of government. AFA strongly supports expansion of the Tree Farm Program in Alabama as a way to engage private landowners in the practice of sustainable management. Isaacson is a Registered Forester and a Certified</p>

Alabama Forests Forever Foundation (AFFF)	Chris Isaacson, President	<a href="mailto:cisacson@alaforestry.org">cisacson@alaforestry.org</a> (334) 481-2124 555 Alabama Street Montgomery AL 36104	Wildlife Biologist with over 30 years progressive experience in land management, procurement, education, sawmill operations and association management.  The Alabama Forests Forever Foundation is a 501(c)3 non-profit organization with a mission to fund education and outreach programs that promote forests and sustainable forest management in Alabama. Funding is provided by forestry tag sales through the Alabama Department of Motor Vehicles. Additional Board members: State Forester, Dean of the School of Forestry and Wildlife Sciences at Auburn University, Chairman - Alabama Forestry Commission, Chairman of the Alabama Board of Registration for Foresters and President -Alabama Forestry Association.
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Project Overview

Alabama’s Tree Farm Program provides the best opportunity for education and outreach to private landowners in Alabama who own more than 15 million acres and support a forest products industry that accounts for nearly 10% of the state’s economy. As demands on the forest resources increase there is a growing need to engage these private landowners through education and outreach focused on protecting the productivity and health of their forests, promoting biological diversity and good wildlife habitat practices, and protecting water quality, especially in high priority landscapes across the state. This grant will provide the opportunity to increase the number of landowners in Alabama engaged in the practice of sustainable forest management by providing education focused on forest health, water quality protection, and integration of wildlife habitat and biodiversity objectives with active timber management programs. By encouraging enrollment in Tree Farm Certification, the program will ensure a continued connection to resource professionals who will be available to provide additional assistance over time. This project builds on a previous 5-year effort that added 1.6 million acres to the Tree Farm Certification Program.

### Supporting the Standard

This project will support a number of requirements of the SFI 2010-2014 Standard relating specifically to increasing sustainable forest management. These include: Objective 1 – “To broaden the implementation of sustainable forestry” and Objective 2 – “To ensure long-term forest productivity, carbon storage, and conservation of forest resources”; Objective 4 – “To manage the quality and distribution of wildlife habitats and contribute to the conservation of biological diversity” at the “stand and landscape level”. This project will also support requirements in Objective 8 – “To broaden the practice of sustainable forestry” specifically by “provid(ing) information to landowners for reforestation...use of best management practices...and for protection of important habitat elements”. In addition, the project addresses Objective 17 – “To broaden the practice of sustainable forestry” by “apply(ing) principles of sustainable forest management”.

### Program Activities

Following are activities that will be performed to complete the project:

1. Using data from state and federal wildlife agencies and the state environmental management department, identify ecologically important landscapes and watersheds where forest management practices are having or may have a significant impact on environmental quality measures or are otherwise determined to be key target areas.
2. Search database of all Alabama forest landowners to identify landowners located in the target areas identified based on size of landownership, proximity to SFI member mills, and current certification footprint (SFI and Tree Farm).
3. Survey partner members / employees to find existing relationships with target landowners.
4. Solicit additional leads from partner members / employees.
5. Collect, develop and deliver training / education material through workshops, seminars, presentations, and on-line programs focused on sustainable management, protecting water quality, promoting biological diversity and integrating wildlife habitat objectives with timber management programs. (Materials will be developed so they can be utilized in other southern states.)
6. Attend / sponsor landowner meetings to promote sustainable management and Tree Farm participation.
7. Engage wood suppliers / timber buyers in target areas to promote Tree Farm participation and provide referrals to Tree Farm staff.
8. Contact target landowners with referrals from or introductions by partner members / employees.
9. Follow up with informational / promotional material and set up meetings with interested landowners.
10. Meet with landowners and sell benefits of forest certification and Tree Farm participation. Provide copy of SFI Landowner Guide.
11. Perform gap analysis to determine what is needed to meet Tree Farm requirements.
12. Where needed, coordinate and/or provide technical assistance from registered foresters and/or wildlife biologists to complete management plans.
13. Enroll landowner in Tree Farm.
14. Report results.
15. Communicate success of program / promote sustainable forest management. Engage Governor and other elected officials in promotion effort.

### Project Details

Project Goals	Actions	Tangible Outcomes	Measure Success	Grant Funds	In-Kind or Matching Funds
Promote sustainable forest management and participation in the Tree Farm Program	-Develop list of landowners in target areas	-List of landowners	-2000 landowners / properties	\$2,500	\$500
	-Generate referrals from partners	-List of referrals	-200 referrals	\$0	\$500
	-Develop / purchase education materials	-presentations, guides, books	-completed materials	\$6,500	\$3,000
	-Conduct landowner outreach meetings	-Follow-up landowner list	-10 meetings / 500 landowners	\$10,000	\$5,000
	-Conduct landowner education programs	-Educated landowners / follow-up landowner list	-400 landowners educated / follow-up list 100 landowners	\$3,000	\$3,000
	-Individual landowner meetings	-Committed landowners	-20 meetings	\$1,000	\$4,300
Increase certified forest acres in Alabama by enrolling landowners in the Tree Farm Program.	-Perform gap analysis	-List of actions needed	- action plans created where needed	\$3,000	\$4,000
	-Coordinate / provide technical assistance	-Completed management plans	-management plans completed where needed	\$4,000	\$10,000
	-Enroll landowners	-Completed enrollments	-200,000 acres enrolled	\$0	\$4,000
	-Communicate results	-Reports to partners / SFI	-completed reports	\$0	\$0
	-Engage Governor / elected officials	-Press Releases / Endorsements	-Governor's endorsement	\$0	\$0

Project Timeline

- Create target / referral list

March-April

- Develop / purchase education material March-April
- Landowner outreach meetings April-August
- Landowner education programs April – December
- Individual meetings May – August
- Gap analysis June – September
- Coordinate/provide technical assistance July – December
- Enroll landowners August – February (2015)
- Communicate results February
- Engage Governor/elected officials February

Project Budget

<b>Expenditure</b>	<b>SFI Grant Funds</b>	<b>Total Matching Funds</b>	<b>Source of Matching Funds*</b>	<b>In-Kind Contributions*</b>	<b>Source of In-kind Contributions</b>	<b>Total per expenditure category</b>
<b>Staff Salary and Benefits</b> (please list budget amount individually per staff person) – <u>Technical Assistance</u>	K. Boyd \$5,000	\$14,000	Alabama Forestry Foundation	Volunteer Inspectors - \$5,000  Company foresters/biologists \$2,000  R. Clifton - \$4,000  A. Smith - \$3,000	Alabama Tree Farm Committee  Westervelt  Alabama Loggers Council  Alabama Forestry Association	\$33,000
<b>Operating Costs</b>						
List Purchase	\$2,500					\$2,500
<u>Outreach</u> Meeting Costs – Room Rentals, AV, Refreshments	\$10,000	\$0	Alabama Forestry Association			\$10,000
Travel	\$3,000	\$1,000	Alabama Forestry Foundation	\$500 \$800  \$1,000	Westervelt  Alabama Tree Farm Committee  Alabama Forestry Association	\$6,300
<u>Education</u> - Material Purchase /	\$6,500					\$10,500

Reproduction - Workshop – Room Rentals, AV, Refreshments	\$3,000	\$1,000	Alabama Forestry Foundation			
Enrollment - Follow-up Education Materials	\$0			\$2,000	Alabama Forests Forever Foundation	\$2,000
<b>Total</b>	<b>\$30,000</b>	<b>\$22,000</b>		<b>\$17,000</b>		<b>\$64,300</b>

\*list sources and amounts of any matching funds or in-kind contributions for each project partner

Agreement to Public Communications

I, Chris Isaacson, Executive Vice President, as a representative of Alabama Forestry Foundation and a Partner in Promoting Stewardship and Expanding Forest Certification in Alabama, hereby give the Sustainable Forestry Initiative® (SFI), Inc. permission to use my name, the organization name as written above, and any other information about the Project in public communications regarding the Project.

I understand that public communications include, but are not limited to:

- Press releases and announcements regarding the SFI® Inc. Conservation and Community Partnerships Grant Program.
- Public presentations, fact sheets, briefing notes and other communication materials that highlight successful Projects and the SFI Inc. Conservation and Community Partnerships Grant Program.
- Use of the Organization logo on the SFI Inc. website, on news releases or other materials.
- Other materials as appropriate.

SFI Inc. will not attribute quotes or opinions to my organization without permission.

With my signature below, I attest that, to the best of my knowledge, the information provided in this application is true and accurate, and I am authorized by Alabama Forestry Foundation to sign this agreement.

Signed:



Executive Vice President  
ALABAMA FORESTRY FOUNDATION

February 14, 2014

## Organization Information

Lead Organization Name and Address	University of Georgia Research Foundation, Inc., on behalf of the Warnell School of Forestry and Natural Resources at the University of Georgia 180 E Green Street, Athens GA 30602	
Project Director	Puneet Dwivedi, PhD Assistant Professor (Sustainability Sciences) Warnell School of Forestry and Natural Resources University of Georgia 180 E Green Street Athens, GA (30602- 2152) Phone: +1-706-542-2406 Email: <a href="mailto:puneetd@uga.edu">puneetd@uga.edu</a>	
Co-Project Director	Robert Izlar, MBA Director, Center for Forest Business Warnell School of Forestry and Natural Resources University of Georgia 180 E Green Street Athens, GA (30602- 2152) Phone: +1-706-542-6819 Email: <a href="mailto:bizlar@uga.edu">bizlar@uga.edu</a>	
Lead Organizational Mission Statement (25 words or less)	To prepare leaders in the conservation and sustainable management of forests and other natural resources; to discover ways to restore and better use the earth's natural resources; and to put into practice forestry and natural resources knowledge.	
Lead Organization Annual Budget	US \$ 22.5 million for 2013 (Warnell)	
Two references (Name, Organization, email and phone) who can speak to the relevance and potential impact of the Project:	Mr. Rob Olszewski Senior Vice President Plum Creek Email: <a href="mailto:rob.olszewski@plumcreek.com">rob.olszewski@plumcreek.com</a> Phone: 440-220-6526	Mr. Bob Farris Director Georgia Forestry Commission <a href="mailto:bfarris@GFC.STATE.GA.US">bfarris@GFC.STATE.GA.US</a> Phone: 478-719-7302

## Project Overview

Project Title	Total Length of time for completion of project	Amount Requested from SFI	Total Project Budget (including matching funds and in-kind contributions)*	Brief Project Summary (50 words or less)	What element(s) of the SFI 2010-2014 Program are addressed by your Project?
How do various silvicultural practices affect overall carbon savings at the stand level and the carbon intensity of wood pellets at the landscape level?	24 Months	\$ 36,404	\$ 42,904	This research will substantially increase the capacity of southern forestland owners in evaluating impacts of different silvicultural practices on overall carbon savings at the stand level by considering carbon sequestered on forestlands, carbon in wood products and wood present in landfills, and avoided carbon emissions over time. Impact of various silvicultural practices on the carbon intensity of wood pellets at a landscape level will help in ensuring the sustainability of emerging transatlantic wood pellet trade. An economic analysis will explain tradeoffs.	<p>Objective 1: Forest Management Planning (<i>this research will help forestland owners in identifying relative merits of different silvicultural practices in terms of overall carbon savings over time and profitability</i>)</p> <p>Objective 7: Efficient Use of Forest Resources (<i>role of logging residues as a potential feedstock for emerging bioenergy markets will be characterized</i>)</p> <p>Objective 12: Avoidance of Controversial Sources Including Illegal Logging (<i>determining carbon intensity of wood pellets produced from different woody feedstocks at a landscape level will help in ascertaining the extent to which wood pellets produced in the southern region of the United States satisfy newly established sustainability standards for solid biomass based fuels in the European Union in general and United Kingdom, in particular.</i></p>

## Project Partners

Confirmed Project Partners (list organization name only)	Primary Contact Name & Title	Complete Contact Information (Email, Phone Number, Mailing Address)	Brief Summary of Individual's and Organizations Qualifications and Experience (150 words or less per partner)
Georgia SFI Implementation Committee (SIC)	F. Chase Cook Program Coordinator	<a href="mailto:cookfc@uga.edu">cookfc@uga.edu</a> (706) 542-7691 180 East Green Street, Athens, GA 30602-2152	Since 1995, the Georgia SIC has been supporting programs that improve the practice of sustainable forestry on all lands. The committee facilitates a state-wide logger education program, forest landowner outreach to over 10,000 individuals per year, and public education initiatives ranging from teaching conservation workshops to community field days to Boy Scout events. The Georgia SIC works directly with different state agencies and company participants to improve state-wide Best Management Practices compliance and expand awareness of wildlife and forest health issues. As program coordinator, Mr. Chase Cook draws on 10 years of experience as a forester, university researcher, and federal government analyst to oversee Georgia's logger education program and leverage a variety of resources to promote sustainable forestry on behalf of the committee.

## Project Timeline

The total project's duration is two years starting from July 2014 and ending on June, 2016. LCA: Life-Cycle Assessment

Quarters	Activities
Quarter 1 (July-Sep,2014)	Recruiting a MS student; Literature Review; Scenarios Development; Field Interviews, Data Collection
Quarter 2 (Oct-Dec, 2014)	LCA for Ascertaining Carbon Balance of Various Silvicultural Practices; Economic Analysis
Quarter 3 (Jan-Mar, 2015)	Development of an Integrated Model (LCA + Economics) at the Stand Level
Quarter 4 (Apr-June, 2015)	LCA for Ascertaining Carbon Intensity of Wood Pellets Manufactured at a Wood Pellet Plant Annual Report to SFI
Quarter 5 (July-Sep, 2015)	Development of an Integrated Model (LCA + Economics) at the Landscape Level
Quarter 6 (Oct-Dec, 2015)	Integration of Models Developed in Quarters 3 and 5
Quarter 7 (Jan-Mar, 2016)	Preparation and Submission of Manuscripts Presentations at Various National and Regional Forestry Conferences
Quarter 8 (Mar-June, 2016)	Final Report to SFI

## Project Budget

Expenditure	SFI Grant Funds	Total Matching Funds	Source of Matching Funds*	In-Kind Contributions*	Source of In-kind Contributions	Total per expenditure category
<b>Staff Salary and Benefits<sup>1</sup></b>	\$ 36404					\$ 36404
<b>Operating Costs</b>						
Research Activities		\$ 3000	Warnell			\$ 3000
Meetings		\$ 800	GA-SIC			\$ 800
Travel		\$ 1200	GA-SIC			\$ 1200
Education & Outreach		\$ 1000	GA-SIC			\$ 1000
Communications		\$ 500	Warnell			\$ 500
<b>Total</b>						<b>\$ 42904</b>

\*list sources and amounts of any matching funds or in-kind contributions for each project partner.

Staff Salary and Benefits: Funds are requested for recruiting a MS student for two years at 40% appointment. Total funds for the first year are \$ 17933 (\$ 17217 for salary + \$ 716 for fringe benefits). Total funds for the second year are \$ 18471 (\$ 17734 for salary + \$ 738 for fringe benefits). Fringe benefits are 4.16% of the total annual salary.

Research Activities: Matching funds of \$ 3000 will cover expenses incurred for successfully undertaking research e.g., traveling to a wood pellet plant for collecting data on life-cycle assessment of manufactured wood pellets, data purchase, and local travel to conduct interviews.

Meetings: Matching funds of \$ 800 will be used to cover registration fees for national and regional conferences.

Travel: Matching funds of \$ 1200 will be used to cover travel-related expenses for attending national and regional conferences.

Education & Outreach: Matching funds of \$ 1000 will be used for sharing findings of the research with stakeholder groups.

Communications: Matching funds of \$ 500 will be used for covering miscellaneous expenses like charges related to internet, telephone, and printing.

## Project Details

**Title:** How do various silvicultural practices affect overall carbon savings at the stand level and the carbon intensity of wood pellets at the landscape level?

**Introduction:** Existing studies which determine the carbon balance of various silvicultural activities mostly focus on carbon balance of forestlands, finished wood products, and wood present in landfills at the stand level over time (Markewitz 2006, Gonzalez-Benecke et al. 2010). However, these studies do not consider avoided carbon emissions related to the utilization of pulpwood or logging residues for manufacturing of energy products. Additionally, these studies do not consider the impact of carbon emissions related with the manufacturing of different wood products on overall carbon savings. Only Dwivedi et al. (2013) has considered the impact of avoided carbon emissions and carbon emissions related to manufacturing of wood products on overall carbon savings at the stand level over time. However, scenarios analyzed by Dwivedi et al. (2013) do not consider thinnings and therefore, are only applicable to a few forestland owners. Additionally, Dwivedi et al. (2013) assume that pulpwood and logging residues will be used for manufacturing of wood pellets only which in turn will be used for electricity generation. This is a limiting assumption as woody feedstocks can be used for ethanol production as well. This is especially true when it is quite likely that the ethanol derived from woody feedstocks will play an important role in meeting the policy target of producing 15 billion gallons of cellulosic ethanol at the national level by 2022 (US Congress 2007, ORNL 2011). Furthermore, no study has evaluated tradeoffs between economics and overall carbon savings for silvicultural practices considering all four carbon pools together.

The United States has become the largest exporter of wood pellets to the European countries (Goetzl 2012). The transatlantic trade of wood pellets has raised a concern among policy makers of European countries about the carbon intensity of electricity derived from imported wood pellets. As a result, policy makers in the United Kingdom have established sustainability standards for electricity derived from solid biomass to ensure carbon benefits of transatlantic wood pellet trade (Voegele 2013). Currently, only two studies have determined carbon intensity of transatlantic wood pellet trade (Dwivedi et al. 2011, 2014). These studies have used simplistic assumptions of feedstock procurement and transportation at the landscape level without accounting for all the major silvicultural practices that forestland owners adopt to manage their forests. Additionally, factors such as forestland owner participation rates, declining size of harvest tracts, and age distribution of plantation at the landscape level are also not considered. Therefore, existing studies provide only partial insights about the carbon intensity of wood pellets manufactured in United States and consumed in European countries. Additionally, no study has deliberated on the economic modeling of transatlantic wood pellet trade so far.

**Geographical focus:** This research will focus on forestland owners located in the southern region of the United States. We have selected this region for several reasons: a) total forestland present in this region is 28.6% (215 million acres) of forestland present nationwide (Smith et al. 2009); b) about 96% of forestland present in this region is classified as timberland due to high average productivity; c) this region supplied about 62% of all removals from the growing stock nationwide in 2006 (Smith et al. 2009); d)

about 87% of forestland in this region is owned by private parties (Smith et al. 2009) which are interested in timber production (Butler 2008); and e) this region has become largest exporter of wood pellets to the Europe and estimates suggest that exports will rise to about 6 million metric tons by the end of 2016 (Goetzl 2012). The candidate species for this research will be loblolly pine (*Pinus taeda*), a popular species among forestland owners of the region covering an area of about 54 million acres (Smith et al. 2009).

**Methods:** This research will extend the model developed by Dwivedi et al. (2013) by focusing on multitude of silvicultural practices used by forestland owners in the southern United States. Suitable set of silvicultural practices involving thinnings will be identified after interviewing loggers, extension agents, and forestland owners. We will evaluate total carbon savings by considering four major carbon pools: carbon sequestered on forestlands, finished wood products, wood present in landfills, and avoided carbon emissions. We will consider avoided carbon emissions due to the use of pulpwood, logging residues, and both pulpwood and logging residues as a feedstock for electricity generation and ethanol production. We will also assess the impact of a change in the rotation age on total carbon savings. Additionally, we will do economic analysis by following Dwivedi et al. (2009) to contrast the tradeoffs between total carbon savings and profitability of forestland owners for various silvicultural practices. Information from the stand level model will be used to extend the model developed by Dwivedi et al. (Dwivedi et al. 2014) by relaxing assumptions to reflect the impact of change in average harvest tract size, participation rates of forestland owners in supplying feedstocks for production of wood pellets, location of harvest tract size on the landscape, and numerous silvicultural practices on the carbon intensity of manufactured wood pellets. We will also consider carbon emissions related to transatlantic shipment of manufactured wood pellets to the United Kingdom to ascertain the carbon intensity of exported wood pellets at the point of consumption. Additionally, we will conduct a life-cycle assessment of a wood pellet plant to ascertain the carbon intensity of wood pellets manufactured in the southern United States. Currently, this information is not present in any literature conclusively especially for southern United States. Furthermore, we will estimate the cost of electricity generated in the United Kingdom from imported wood pellets for different silvicultural practices.

**Impact:** This project will build lifelong capacity of a graduate student to undertake research on issues related to forest carbon and bioenergy. This research will inform landowners and policy makers about environmental and economic tradeoffs related with different silvicultural practices. The estimated carbon intensity of manufactured wood pellets across all silvicultural practices adopted by forestland owners in presence of realistic landscape-level assumptions will help in ascertaining the potential of wood pellet plants in meeting strict sustainability standards of the United Kingdom. Additionally, it will inform us about the equivalent carbon price at which the electricity derived from wood pellets or ethanol derived from the wood chips become equal to the comparative energy products derived from fossil fuels.

**Conservation Strategies:** This project will significantly help those participants of SFI (forestland owners and wood pellets plants) which are interested in exploring the relationship between carbon and bioenergy. The first part of our proposal focuses on the

second part of the conservation strategy i.e., *develop tools to help landowners better understand the impacts of forest management on carbon in the atmosphere*. However, the second part of our proposal goes one step ahead by linking silvicultural practices to the carbon intensity of manufactured wood pellets at the landscape level.

**Activities:** The results of the study will be published in peer reviewed publications acknowledging support of SFI. We will also present results of the study in various regional and national level conferences. Additionally, results of the study will be shared with the attendees of logger education program and forestland owner outreach program by Mr. Chase Cook of GA SIC. The outreach communications of GA SIC extends over 10000 participants each year.

**Personnel:** The Project Director (Dr. Puneet Dwivedi) has substantial experience in conducting life-cycle assessment of wood-based energy products at the landscape level. He has published extensively on issues related to carbon accounting and sustainability of wood-based energy products at national and international levels. The Project Director has full access to all the data and models that will be extended through the research work. The Co-Project Director (Mr. Robert Izlar) has worked with forest-based industries in the state of Georgia for over 40 years. He heads the Center for Forest Business at the Warnell School of Forestry and Natural Resources, University of Georgia. The Co-Project Director will coordinate life-cycle assessment with a wood-pellet plant located in southern Georgia.

## References

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### Description of Project Goals

Project Goals	Actions	Tangible Outcomes	Measure Success	Grant Funds	In-Kind or Matching Funds
Goal 1: Ascertaining tradeoffs between economics and overall carbon savings for various silvicultural practices over time.	Integrating life-cycle assessment and economic analysis in a single analysis framework.	Forestland owners will make informed decisions after knowing about the merits of various silvicultural practices in terms of overall carbon savings and economic benefits.	One published manuscript in peer reviewed journal; At least one presentation in forestry conferences; Successful defense of a MS thesis at the Warnell.	\$17933	\$3000
Goal 2: Determining carbon emissions related to production of wood pellets at a wood pellet plant.	Life-cycle assessment of a wood pellet plant will help in determining carbon emissions related with a unit quantity of wood pellet produced.	Wood pellet plant owners will be able to identify key sources of carbon emissions.	At least one presentation in national or regional forestry conferences.		
Goal 3: Ascertaining carbon intensity and unit cost of manufactured wood pellets at a landscape level by incorporating carbon emissions related with various silvicultural activities.	Integrated life-cycle assessment covering all the steps in the supply chain starting from feedstock production to the point wood pellets are burned in the United Kingdom. Landscape characteristics (participation rate of forestland owners, distribution of plantation age) will be considered as well to strengthen results. An economic analysis will be also performed.	This analysis will help in determining the extent up to which wood pellet plants in the southern region of the United States satisfy newly established sustainability standards for solid biomass based fuels in the United Kingdom. An economic analysis will help in determining subsidy levels in the long run.	A published manuscript in a peer reviewed journal; At least two presentations in forestry conferences; Successful defense of a MS thesis at the Warnell.	\$18471	\$3500

Lead Organization Name and Address	American Forest Foundation 2000 M Street, Suite 550 Washington, DC 20036
Name, phone and email for Project Director	Bettina Ring, Senior Vice President, American Tree Farm System bring@forestfoundation.org 202-765-3593
Lead Organizational Mission Statement (25 words or less)	The American Forest Foundation works on-the-ground with families, teachers, and elected officials to promote stewardship and protect our nation's forest heritage.
Lead Organization Annual Operating Budget	10 million
Two references (Name, Organization, email and phone) who can speak to the potential of the Project (these should not be the same as your Project partners):	Paul DeLong, State Forester, Wisconsin DNR WI DNR - Division of Forestry P.O. Box 7921 Madison, WI 53707 P (608) 264-9224 <a href="mailto:paul.delong@dnr.state.wi.us">paul.delong@dnr.state.wi.us</a>  Buddy Huffaker, Executive Director, Aldo Leopold Foundation P.O.Box 77 Baraboo, WI 53913 608.355.0279 buddy@aldoleopold.org.

Project Overview

*The Project must relate to or support one or more elements of the SFI 2010-2014 Program. You can download a copy of the Standard and supporting documents on our [website](#).*

Confirmed Project Partners (list organization name only)*	Project Title	Amount Requested	Total Project Budget	Brief Project Summary (50 words or less)	What element(s) of the SFI 2010-2014 Program does/do your Project address (Please cite the Standard Component(s))
NC Tree Farm Committee	The Phase 2 – Using Social Marketing to Engage NC Woodlands Owners in ATFS and	\$50,000	\$50,000	This project is the second phase of an existing project that focuses on outreach to	Objective 8: Landowner Outreach  Objective 11: Promote

	Longleaf Restoration			family forestland owners to motivate certification under the American Tree Farm System. This effort further refines the data from Phase I and includes a full campaign that will potentially return a significantly higher percentage of landowners who opt to participate in ATFS Certification and Longleaf restoration, as compared to traditional, less-targeted approaches.	Conservation of Biological Diversity Hotspots (Longleaf)
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Project Partners

*\*For each Project Partner, please complete the following table. Each Project Partner must also include a signed copy of the Agreement to Public Communications, which can be found at the end of this document.*

Confirmed Project Partners (list organization name only)*	Primary Contact Name & Title	Complete Contact Information (Email, Phone Number, Mailing Address)	Brief Summary of Individual and Organizations Qualifications and Experience (150 words or less)
NC Tree Farm Committee	Leslie McCormick, Administrator	Leslie Purcell McCormick N.C. Tree Farm Program 1807 Dunwick Court Apex, NC 27523 <a href="mailto:nctreefarm@gmail.com">nctreefarm@gmail.com</a> 919-917-8646	The American Tree Farm System is a program for woodland owners who are committed to sustainably managing their woods for wood, water, wildlife and recreation. Each state program is run by a diverse group of partners, such as state agencies, non-profit organizations, volunteers, foresters and landowners. The North Carolina Tree Farm

			Committee delivers the Tree Farm program in NC which has over 800 Certified Tree Farms in the program today. In 2013, the North Carolina Tree Farm program gained 501c (3) status, which makes it a non-profit organization
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**Project Details**

Please provide your answers to the following questions to describe your project. You may provide an introductory narrative to your project, but the following questions must be addressed in the requested format.

1. For conservation projects, please explain how your project will illustrate or inform the role of SFI in the requested topic.
  - a. This project will include SFI member organizations and will result in more ATFS certified wood for SFI members in an important woodbasket in NC and will help them address landowner outreach and promote conservation of biological diversity, two of their existing standards.
2. What activities will you and your Project partners perform to promote the outcomes of your Project and SFI Involvement in the Project?
  - a. Publicize results on the AFF Impact Center website and on partner site
  - b. Include a project overview in AFF’s Woodland magazine
  - c. Write and submit a results news release to industry trade publications
  - d. Conduct a webinar regarding project results for ATFS Network and SFI State Implementation Committees
  - e. Utilize AFF social media accounts to give live monthly project updates to the tree farm community
3. In the table below, please list the goals for your project. For each goal, please describe the actions you will take to achieve your goal, the corresponding tangible outcomes (e.g. implementation guidance on a component of the SFI Standard, outreach and education to landowners, acres positively affected by the Project) for each goal, how you will measure your success in achieving each goal, and the portion of the requested grant funds that would be used to achieve the goal. Add rows as-needed to address all project goals.

Project Goals	Activities	Tangible Outcomes	Measure Success	Grant Funds	In-Kind or Matching Funds
Goal 1: Better understanding of landowner’s barriers towards action	Conduct barrier and benefit research	Report on landowner barriers and benefits	Peer reviewed report	\$10,000	\$10,000
Goal 2: Continue to improve the predictive modeling database	Update the model via barrier research and other 3 <sup>rd</sup> party data	Updated prime prospect list	More comprehensive database that has been ground tested	\$10,000	\$10,000

Goal 3: Improve the marketing plan based on new information/ results	Update the original marketing plan	Updated marketing plan		\$10,000	\$10,000
Goal 4: Take year 1 pilot results and implement second year's full campaign	Refine campaign material and then deploy. Conduct field outreach and track results.	Full campaign assessment report	10% response rate	\$15,000	\$15,000

**Project Timeline**

Please provide a timeline for completion of the project. Projects may be up to three years in length, and should be for 9 months at a minimum. The timeline should reflect when you will deliver upon the goals and outcomes as outlined above.

**PHASE 2 – Campaign Planning**

A. AFF conducts barrier and benefit research via a landowner survey.	<b>January-February 2015</b>
B. AFF adds new data into the modeling database.	<b>March 2015</b>
C. AFF reruns the National Query Engine to find new prime prospects.	<b>March 2015</b>
D. AFF reviews original marketing plan/goals with client and updates the plan as needed. AFF reviews other new project results that could help improve the campaign strategy.	<b>April 2015</b>

**PHASE 3 – Implementation and Sustaining Strategies**

E. AFF and client refine campaign material based on year 1 results.	<b>May 2015</b>
F. AFF deploys roll-out of campaign material.	<b>June-August 2015</b>
G. AFF/on-the-ground partners maintain results tracking database.	<b>June-August 2015</b>
H. Field outreach completed.	<b>September 2015</b>
I. AFF provides client a full campaign assessment report including BMPs and various communication building templates. AFF hands-off tracking database.	<b>November 2015</b>

**Project Budget**

Please fill out the table below to illustrate the entire Project budget. SFI Inc. will not award any funds for organization overhead costs, which include but are not limited to, office rent or maintenance, utilities, temporary hires, etc. While some portion of the grant may be used to offset staff salary and benefits, the focus should be on on-the-ground activities.

You may modify this table to fit your needs, however please ensure your budget addresses the following components:

1. Percent of budget allocated to each staff person working on the Project
2. Total Operating costs divided up by relevant topics such as travel, meetings, communications, education & outreach etc.
3. Identify any in-kind support allocated to this Project by each project partner

4. Identify any matching funds allocated to this Project by each project partner

<b>Expenditure</b>	<b>Amount</b>	<b>Matching Funds*</b>	<b>In-Kind Contributions*</b>
<b>Staff Salary and Benefits</b>	\$15,000	\$25,000	5,000 (NC Tree Farm Committee)
<b>Operating Costs</b>			
Research Activities	5,000	5,000	\$1,000 (NC Tree Farm Committee)
Meetings	2,000		
Travel	3,000		
Education & Outreach	15,000	5,000	
Communications	10,000	2,500	2,000 (NC Tree Farm Committee)
Database updates	2,500	2,500	2,000 (NC Tree Farm Committee)
<b>Total</b>	<b>\$50,000</b>	<b>\$40,000</b>	<b>\$10,000</b>

\*list sources and amounts of any matching funds or in-kind contributions for each project partner

## Agreement to Public Communications

*As part of the Grant Application, the Lead Organization must complete and sign this page. All identified organizations and partners involved in the Project must also agree to authorize SFI Inc. to publicize the Project and to use their names, images, logos and information about the Project in such publicity. All Organizations listed in the application will be required to sign an agreement to this effect and submit it with the application. If additional Organizations join the Project after an application is accepted by SFI Inc., they will also be required to sign the agreement. You can access an additional copy of this agreement for your Project Partners here:*



Agreement to Public  
Communications.doc

I, Bettina Ring, Senior Vice President, Family Forests, as a representative of American Forest Foundation and a Partner in Phase 2 – Using Social Marketing to Engage NC Woodland Owners in ATFS and Longeaf Restoration, hereby give the Sustainable Forestry Initiative® (SFI), Inc. permission to use my name, the organization name as written above, and any other information about the Project in public communications regarding the Project.

I understand that public communications include, but are not limited to:

- Press releases and announcements regarding the SFI® Inc. Conservation and Community Partnerships Grant Program.
- Public presentations, fact sheets, briefing notes and other communication materials that highlight successful Projects and the SFI Inc. Conservation and Community Partnerships Grant Program.
- Use of the Organization logo on the SFI Inc. website, on news releases or other materials.
- Other materials as appropriate.

SFI Inc. will not attribute quotes or opinions to my organization without permission.

With my signature below, I attest that, to the best of my knowledge, the information provided in this application is true and accurate, and I am authorized by American Forest Foundation to sign this agreement.

Signed:

Bettina K. Ring

Name

Senior Vice President, Family Forests

Title

American Forest Foundation

Organization

February 21, 2014

Date

All applications must include the following items:

**Organization Information**

*The Lead Organization in the Project must be a non-profit organization (eg. A registered, tax-exempt 501(c)(3) in the US or registered with the Charities Directorate of the Canada Revenue Agency in Canada). Colleges, universities and schools qualify as non-profit organizations. Applicants must submit current proof of tax-exempt status with this application.*

Lead Organization Name and Address	Virginia Polytechnic Institute and State University Office of Sponsored Programs North End Center, Suite 4200 (MC 0170) 300 Turner Street, NW Blacksburg, Virginia 24061-0001
Name, phone and email for Project Director	Scott Barrett Extension Specialist, Forest Operations 540-231-6702 <a href="mailto:sbarrett@vt.edu">sbarrett@vt.edu</a>
Lead Organizational Mission Statement (25 words or less)	Virginia Polytechnic Institute and State University (Virginia Tech) is a public land-grant university serving the Commonwealth of Virginia, the nation, and the world community.
Lead Organization Annual Operating Budget	\$1.28 Billion
Two references (Name, Organization, email and phone) who can speak to the relevance and potential impact of the Project (these should not be the same as your Project partners):	Matt Poirot Assistant Director of Forest Management Water Quality Program Virginia Department of Forestry <a href="mailto:matt.poirot@dof.virginia.gov">matt.poirot@dof.virginia.gov</a> 434-220-9027  Jay Phaup Greif Packaging LLC <a href="mailto:jay.phaup@greif.com">jay.phaup@greif.com</a> (434) 841-9634

Project Overview

The Project must relate to or support one or more elements of the SFI 2010-2014 Program. You can download a copy of the Standard and supporting documents from the SFI website here:

<http://www.sfiprogram.org/sfi-standard/sfi-standards/>

Project Title	Total Length of time for completion of project (in months, from commencement to final reporting)	Amount Requested from SFI	Total Project Budget (including matching funds and in-kind contributions)*	Brief Project Summary (50 words or less)	What element(s) of the SFI 2010-2014 Program are addressed by your Project? (Please cite the Standard Component(s))
Evaluation of an SFI Logger Training Program for Protecting Water Quality	33	\$59,173	\$120,616	This project will evaluate the most effective methods for training loggers and others that implement BMPs to protect water quality and will evaluate the ability of logger training programs to improve implementation of BMPs for water quality.	This project would support the following SFI Objectives: <b>Objective 3.</b> Protection and Maintenance of Water Resources <b>Objective 10.</b> Adherence to Best Management Practices <b>Objective 15.</b> Forestry Research, Science, and Technology. <b>Objective 16.</b> Training and Education

\* Matching funds and in-kind contributions should be reflected again in the budget outline below, indicating the source for each amount and Project Partner

## Project Partners

*\*For each Project Partner, please complete the following table. This application must include a signed copy of the Agreement to Public Communications for each listed partner, as well as the Lead Organization. A copy of this agreement may be found at the end of this document.*

Confirmed Project Partners (list organization name only)	Primary Contact Name & Title	Complete Contact Information (Email, Phone Number, Mailing Address)	Brief Summary of Individual's and Organizations Qualifications and Experience (150 words or less per partner)
Virginia SFI SIC	<p>Jim Kuykendall – Glatfelter Paper Co. Chair of VA SFI SIC</p> <p>VA Forestry association is the administrator for the <u>VA SFI SIC</u></p>	<p>Jim Kuykendall (540) 548-1756 <a href="mailto:james.kuykendall@glatfelter.com">james.kuykendall@glatfelter.com</a></p> <p>Virginia Forestry Association 3808 Augusta Avenue Richmond, VA (804) 278-8733 <a href="mailto:vfa@verizon.net">vfa@verizon.net</a></p>	<p>As the Chair of the VA SFI SIC, Jim leads the efforts and activities of the SIC. Virginia's SIC has been involved in logger and landowner training activities as well as outreach to other groups for approximately 20 years. This committee represents SFI member companies operating in VA and collectively they are responsible for the vast majority of wood consumption and purchase of wood from forest harvesting operations in Virginia.</p>

## Project Details

*Please provide answers to the following questions to describe your project.*

- Please provide an introductory narrative describing (a) the basic methodology, and (b) the intended impact of your project.*

The primary goal for this project is to evaluate logger training workshop formats for BMP trainings as well as the ability of SFI logger training programs to improve implementation of BMPs for water quality. Logger training is a significant component of the SFI standard and a primary focus of many SFI State Implementation Committees (SICs). Implementation of BMPs to protect water quality are often a primary focus of logger training programs. Previous research has documented the effectiveness of BMPs for reducing erosion and sedimentation and loggers are often the ones that are responsible for implementing BMPs on harvesting operations. While most states are

involved in BMP training programs and most logging operations have received BMP training, there are few studies documenting the effectiveness of different training formats or the effectiveness of BMP trainings for improving BMP implementation. With many logger training programs focusing on BMP implementation, a study documenting the most effective training methods could benefit logger training programs across the country and help to more effectively focus training efforts. Documenting the ability of BMP training programs to improve BMP implementation could help demonstrate the effectiveness of SFI training requirements at protecting water quality.

This project will evaluate different formats for BMP trainings and evaluate the effectiveness of those trainings. This project will utilize a graduate student working along with the project director to complete the necessary tasks to complete this project. The graduate student will be responsible for “on the ground” data collection, as well as data analysis, and summary of results. Additionally the project director will work in close cooperation with the Virginia Department of Forestry staff that are responsible for inspecting and enforcing water quality laws throughout Virginia. This collaboration with the state agency will ensure that trainings focus on critical issues and will also ensure that research results can be incorporated into the decision making process related to BMPs in Virginia. Logger trainings utilized for the evaluation will be conducted through the Virginia SHARP Logger Program ([www.sharplogger.vt.edu](http://www.sharplogger.vt.edu)), Virginia’s SFI Logger training program which is supported by the VA SFI SIC.

BMP trainings have been offered for many years and most loggers have attended one or more trainings on the basic BMPs for water quality. In most states, BMP implementation has improved substantially, yet there is still room for improvement. A training program will be developed in cooperation with the Virginia Department of Forestry (VDOF) water quality personnel to identify key areas where improvement is still needed in implementation of BMPs to protect water quality. Training programs will be developed that will serve as a refresher on BMPs for water quality, but will focus primarily on specific BMPs identified as areas needing improvement in implementation.

- 1.) A “standard” classroom training will be developed to focus on key areas for improving BMP implementation and will include presentation by VDOF personnel and VA Tech faculty.
- 2.) A field exercise will be developed to help reinforce the key areas for BMP improvement and trainings will be offered that include both an indoor training along with the field exercise to reinforce the key points provided in the indoor training.
- 3.) A set of handouts and reminder “checklists” will be developed to remind participants of the key areas for BMP improvement that were highlighted in the class. These “checklists” can be in the form of a sticker, magnet, or similar small printed reminder that could be placed in equipment, trucks, or other conspicuous place to further remind operators of the key BMPs for protecting water quality

A total of 12 trainings will be offered across Virginia. Post-training evaluations will be conducted immediately after trainings and 3-6 months post training. Post-training evaluations immediately after the training will assess the effectiveness of trainings and loggers opinions on the usefulness of the training for improving implementation of BMPs on their jobs. Post training follow ups 3-6 months after training will evaluate whether or not the loggers were able to utilize the trainings to improve BMP implementation on their operations. Post training evaluations will also evaluate the effectiveness of the field exercise and the reminder “checklists” for improving BMP

implementation. Additionally, “on the ground” implementation of BMPs will be evaluated for harvest sites following the workshops. These “on the ground assessments” will evaluate whether loggers were able to use the information from the workshops to improve BMP implementation on their harvest sites.

- 2. Please explain how your project will illustrate or inform the role of SFI in one or more of the five conservation categories listed on the first page (Note that SFI may consider compelling projects that may fall outside these categories)*

This project will illustrate or inform the role of SFI in protecting water quality. SFI SIC's devote substantial resources towards logger training programs and BMPs for protecting water quality are a significant component of those training programs. Research related to identifying the most effective training methods for BMP trainings can help to refine the efforts of logger training programs. Additionally, one of the goals for this project is to evaluate the effectiveness of training programs for improving BMP implementation “on the ground”. SFI program participants encourage loggers to attend trainings, and research has shown that BMPs are effective at reducing erosion and sedimentation when properly implemented. This project will evaluate the effectiveness of training programs to improve BMP implementation and therefore improve water quality as a result of attending trainings. With a focus on continual improvement, results from this project could help to improve logger training programs, and as a result, improve water quality on forest harvesting sites.

- 3. What activities will you and your Project partners perform to promote the outcomes of your Project and SFI Involvement in the Project?*

Results from this project will be published in a peer reviewed journal article highlighting research results. Additionally, summarized results will be made available in a format suitable for sharing with other SFI SIC's, such as a Forest Resources Association (FRA) technical release that would have national distribution. An FRA Technical Release or other similar publication would highlight results related to most effective training methods so that other SIC's could utilize the information and possibly incorporate the information into their training programs. If appropriate, the lead investigator would be willing to present findings at the SFI annual conference or other venues identified by SFI Inc.

- 4. In the table below, please list the goals for your project. For each goal, please describe: the actions you will take to achieve your goal; the corresponding tangible outcomes (e.g. provide implementation guidance on a component of the SFI Standard, landowners reached through education programs, acres positively affected by the Project); the means by which you will measure success in achieving each goal, and; the portion of the requested grant funds that would be used to achieve the goal. Add rows as needed to address all project goals.*

Project Goals	Actions	Tangible Outcomes	Measure Success	Grant Funds	In-Kind or Matching Funds
Identify key areas for improving BMP implementation and develop training tools to improve BMP implementation	Work with VDOF to determine areas that still need improvement	Identification of key areas to focus training efforts	Completed Extension or similar publication and key BMP "Checklist" reminders	\$7,000	\$7,500
Develop workshops to address key areas needing BMP improvement	Develop, deliver, and evaluate logger training workshops focused on improving implementation of BMPs for water quality at locations across Virginia	12 workshops scheduled across Virginia through the VA SHARP Logger Program (estimated 150 to 300 loggers trained)	Completed workshops and post training evaluation	\$14,000	\$15,000
Evaluate effectiveness of training methods	Post training (3-6 months after workshop) survey of loggers attending workshops	Assessment of training effectiveness and loggers ability to utilize information provided in class	Completed post training survey data collection and analysis	\$14,000	\$18,000
Evaluate effectiveness of trainings to improve implementation of BMPs for water quality	Evaluate "on the ground" post training implementation of key BMPs to protect water quality	Assessment of the effectiveness of logger training programs to improve BMP implementation	Completed Evaluation of "on the ground" implementation of BMPs to protect water quality	\$16,000	\$12,500
Inform others of research results and enable other logger training programs to utilize information generated from this project	Develop publications to share results	Improve logger training programs and improve implementation of BMPs to protect water quality.	Prepare an article for publication in a peer reviewed journal; and publish an FRA technical release or similar publication summarizing research results that would be applicable for use by logger training programs.	\$8,173	\$8,443

## Project Timeline

*Please provide a timeline for completion of the project. Projects may range to a maximum of three years. Projects will commence at the time the Grant Agreement is signed, soon after notification of acceptance of your proposal. The timeline should indicate when you will deliver upon the goals and outcomes – project payments will be tied to attainment of project milestones and will be generally be made on a six-month payment schedule. SFI will receive and process invoices during a brief window each quarter (eg. in March, June, September and December). The specific timeline for each project will dictate the schedule of reports and payments.*

The total project will take approximately 33 months from the time of acceptance (Estimating April of 2014). Estimated completion dates for measures of success from the project goals will be completed as shown in the following table. All project deliverables will be completed by the end of 2016.

Measure Success	Estimated Completion Date
Completed Extension publication and key BMP "Checklist" reminders	October 1, 2014
Completed workshops and post training evaluation	April 1, 2015
Completed post training survey data	December 1, 2015
Completed Evaluation of "on the ground" implementation of BMPs to protect water quality	May 2, 2016
Prepare an article for publication in a peer reviewed journal and prepare an FRA technical release or similar publication summarizing research results that would be applicable for use by logger training programs.	December 30, 2016

## Project Budget

Please fill out the table below to illustrate the entire Project budget. SFI Inc. will not award any funds for organization overhead costs, which include but are not limited to, office rent or maintenance, utilities, temporary hires, etc. While some portion of the grant may be used to offset staff salary and benefits, the focus should be on-the-ground activities.

You may modify this table to fit your needs, however please ensure your budget addresses the following components:

1. Portion of the budget to be allocated to each staff person working on the Project
2. Total Operating costs by line item, eg. travel, meetings, communications, education & outreach (please add categories as needed)
3. Identify any in-kind support allocated to this Project by each project partner
4. Identify any matching funds allocated to this Project by each project partner

<b>Expenditure</b>	<b>SFI Grant Funds</b>	<b>Total Matching Funds</b>	<b>Source of Matching Funds*</b>	<b>In-Kind Contributions*</b>	<b>Source of In-kind Contributions</b>	<b>Total per expenditure category</b>
<b>Staff Salary and Benefits</b> (please list budget amount individually per staff person) (Graduate Student)	\$46,173					\$46,173
<b>Operating Costs</b>						
Research Activities Tuition		\$25,348	VA Tech			
Travel, Meetings, Education and Outreach	\$7,500					
Materials / Supplies, e.g., printing and postage for advertisement, and follow up surveys	\$4,000					
Communications / Page Charges for peer review article	\$1,500					
Unrecovered Indirect		\$36,095	VA Tech			
<b>Total</b>	<b>\$59,173</b>	<b>\$61,443</b>				<b>\$120,616</b>

\*list sources and amounts of any matching funds or in-kind contributions for each project partner

Bureau of Business and Economic Research  
University of Montana  
Gallagher Business Building  
Missoula, MT 59812  
February 17, 2014

Paul Trianosky  
Sustainable Forest Initiative, Inc.  
900 17<sup>th</sup> St. NW, Suite 700  
Washington, DC 20006

Re: 2014 SFI Competitive Grant Funding; Proposed "Forest Regeneration Tools for Appalachian Landowners"

Dear Mr. Trianosky,

Along with my partners, Mr. Jerre Creighton, Ms. Susan Fox, Mr. Michael Hogg, Dr. John Goodburn, Dr. Phil Radtke, and Dr. Tom Fox, I am re-applying to SFI's 2014 Conservation Grant RFP. I have attached the SFI template and supporting documentation. Although we were not funded by SFI's 2013 grant program, we were strongly encouraged to reapply in 2014. Eli Weissman kindly offered constructive criticism of our last proposal. We listened carefully and learned that reviewers found great merit in our proposed work; however, we lacked a diversity of partners (only two in 2013). We have now banded the efforts of Plum Creek Corporation, Virginia Tech University, the Virginia Department of Forestry, the University of Montana, and the U.S. Forest Service to offer the capabilities of 7 PI's and 5 partner institutions. Further, Eli mentioned that 2013 competition for SFI's grant funding was severe. We have reduced our funding request by 25 percent plus now offer staged "proof of concept" research at a reduced funding level. While we firmly believe our work merits complete funding, we would be willing to accept staged funding: we would complete a portion of our research and hope that SFI leadership would then approve funding for completion of our work.

We offer unique and outstanding benefits to SFI with our proposed research:

- We propose to test the function of REGEN, widely seen by scientists and land managers as the most effective regeneration prediction model in the southern Appalachians. We suggest that reforestation and by extension tree composition and forest structure are THE most critical forest landowner information needs. Our work clearly supports the objectives, elements and standards of SFI.
- We propose to calibrate and support the function of REGEN in the Forest Vegetation Simulator (FVS), a flexible and widely used growth and yield model designed to be used by land owners, foresters, and consultants. FVS provides an easy to use platform that is supported by a full time management staff- no other growth and yield modeling system can boast of this.
- We offer substantial in-kind contributions; we will effectively perform the work outlined in our proposal at a small fraction of true cost.
- We propose to publish our results in peer reviewed journals then summarize our work in a synthetic, manager-friendly technology transfer document designed to help land owners predict forest regeneration after cuttings and natural disturbances.
- We would hold one or more workshops for land owners to enable them to effectively predict forest regeneration.
- Our research team represents many decades of practical and scientific forestry knowledge.

Thank you for the opportunity to apply for SFI funding.

Sincerely,

/s/ Erik C. Berg Ph.D., C.F.

Enclosures

Lead Organization Name and Address	Virginia Tech University 118 N. Main St. (0337) Blacksburg, VA 24061
Name, phone and email for Project Director	Dr. Thomas Fox (540) 231-8862 trfox@vt.edu
Lead Organizational Mission Statement (25 words or less)	Virginia Polytechnic Institute and State University (Virginia Tech) is a public land-grant university serving the Commonwealth of Virginia, the nation, and the world community. The discovery and dissemination of new knowledge are central to its mission. Through its focus on teaching and learning, research and discovery, and outreach and engagement, the university creates, conveys, and applies knowledge to expand personal growth and opportunity, advance social and community development, foster economic competitiveness, and improve the quality of life.  (2001 Mission Statement adapted in 2006, by the Board of Visitors)
Lead Organization Annual Operating Budget	\$1.2 billion
Two references (Name, Organization, email and phone) who can speak to the potential of the Project (these should not be the same as your Project partners):	Michael Van Dyck Forest Management Service Center USDA Forest Service 2150A Centre Avenue Fort Collins, CO 80526 Voice: 970-295-5774 Fax: 970-295-5755 E-mail: mvandyck@fs.fed.us  Henry McNab Bent Creek Experimental Forest 1577 Brevard Road Asheville, NC 28806 Phone: (828) 667-5261 E-mail: hmcnab@fs.fed.us

Project Overview

The Project must relate to or support one or more elements of the SFI 2010-2014 Program. You can download a copy of the Standard and supporting documents on our [website](#).

Confirmed Project Partners (list organization name only)*	Project Title	Amount Requested	Total Project Budget	Brief Project Summary (50 words or less)	What element(s) of the SFI 2010- 2014 Program does/do your Project address (Please cite the Standard Component(s))
Virginia Tech University Virginia Department of Forestry	Forest Regeneration Tools for Appalachian Landowners	\$60,000	\$142,000	Lack of knowledge about regeneration outcomes after forest disturbance remains one of the most critical problems facing Appalachian landowners. We propose to create tools that will enable forest landowners to accurately predict the suite of regeneration species that will successfully grow to maturity after forest cuttings and natural disturbances.	1. Sustainable Forestry 2. Forest Productivity 10. Research  Objective 1. Forest Management Planning Objective 7. Efficient Use of Forest Resources Objective 8. Landowner Outreach Objective 15. Forestry Research, Science, and Technology Specifically...A forest inventory system and a method to calculate growth and yield (Please see attached verbiage in appendix A)

Project Partners

\*For each Project Partner, please complete the following table. Each Project Partner must also include a signed copy of the Agreement to Public Communications, which can be found at the end of this document.

Confirmed Project Partners (list organization name only)*	Primary Contact Name & Title	Complete Contact Information (Email, Phone Number, Mailing Address)	Brief Summary of Individual and Organizations Qualifications and Experience (150 words or less)
Virginia Tech University	<p>Dr. Tom Fox; Professor of Forest Soils and Silviculture</p> <p>Dr. Erik Berg (POC; Research Forester)</p> <p>Dr. Phil Radtke</p>	<p>Dr. Tom- Fox Forest Res &amp; Environ Cons (0324) 228 Cheatham Hall Blacksburg, VA 24061 (540) 231-8862 trfox@vt.edu</p> <p>Dr. Erik Berg <a href="mailto:erik.berg@business.umt.edu">erik.berg@business.umt.edu</a> 540-525-4996 Currently at: Bureau of Business and Economic Research Gallagher Business Bldg. University of Montana Missoula, MT 59812</p> <p>Dr. Phil Radtke Virginia Tech. Forest Res &amp; Environ Cons (0324) 319E Cheatham Hall Blacksburg, VA 24061 <a href="mailto:pradtke@vt.edu">pradtke@vt.edu</a></p>	<p>Dr. Tom Fox’s distinguished academic accomplishments build on a long and productive industrial research career in soils and silviculture. He has focused his science interests on the integration of forest soils, hydrology and silviculture. He is particularly well known for his stellar accomplishments in southern pine ecology and management. Dr. Fox has directed the research activities of more than 30 graduate students.</p> <p>Dr. Erik Berg, currently a research forester with the University of Montana’s Bureau of Business and Economic Research, would work under Dr. Fox’s direction as a Virginia Tech researcher if this proposed project is funded. Dr. Berg designed and installed all of the empirical field based investigations included in this proposal in the 1990s when he served as a forester at the Bent Creek Experimental Forest. Erik’s 20 years of forest management and silviculture experience provide a practical “in the trenches” background for his 18 years invested in forest ecology research and research management.</p> <p>Dr. Phil Radtke is a forest biometrician and growth and yield modeling expert with interests in and 20 years of experience in assessment and modeling of forest resources, evaluating models used in forestry and ecology, acquisition, management and analysis of data, and improving access to growth and yield models. He has developed a web-based version of the REGEN model and will serve as a consultant for moving REGEN into the FVS modeling frameworks.</p>

Confirmed Project Partners (list organization name only)*	Primary Contact Name & Title	Complete Contact Information (Email, Phone Number, Mailing Address)	Brief Summary of Individual and Organizations Qualifications and Experience (150 words or less)
Virginia Department of Forestry	Mr. Jerre Creighton Research Forester	900 Natural Resources Dr., Charlottesville, VA 22903 (434)-820-9119 jerre.creighton@dof.virginia.gov	In a twenty-five-year career, Jerre Creighton has conducted silviculture research and been responsible for the operational application of results on a scale spanning the continental United States from Maine to Florida, Minnesota to Texas, and in the Pacific Northwest. While the bulk of his activity has pertained to the reforestation and productivity of conifers, a significant proportion of his time in West Virginia and Virginia has been spent on hardwood regeneration. He currently manages a research program including over 40 active studies throughout Virginia, and each year he speaks to hundreds of stakeholders at a variety of workshops and meetings. His blend of research and operational experience give him a unique practical perspective. The Virginia Department of Forestry protects and develops healthy, sustainable forest resources for Virginians. Since the early 1950's, the Department has supported an Applied Research program that conducts structured research in the areas of pine and hardwood silviculture, tree improvement, growth and yield, and diminished species restoration. One of the most prominent recent initiatives has been the protection and promotion for healthy hardwood forests.
Plum Creek Timber Company	<b>Mr. Dale Hogg</b> Manager Forest Biometrics Manager	2500 Daniels Bridge Rd. #200-2a Athens, GA 30606 706-583-6711 <a href="mailto:Dale.Hogg@plumcreek.com">Dale.Hogg@plumcreek.com</a>	Mr. Hogg has more than 20 years of experience as a biometrician and growth and yield modeler. He currently supervises Plum Creek's biometrics work in eastern/southern forests and routinely uses a variety of growth and yield models. He is intimately familiar with the algorithms imbedded in the Forest Vegetation Simulator (FVS). Because he works in southern pine/hardwood forest ecosystems, his quantitative expertise will ensure that practical, technically defensible tools will be created through the proposed research.
USDA Forest Service	<b>Ms. Susan Fox</b> Director, Aldo Leopold Wilderness Research Institute	790 East Beckwith Ave. Missoula, MT 59801 406-542-4193 <a href="mailto:sfox@fs.fed.us">sfox@fs.fed.us</a>	Susan Fox now serves as director of the premier wilderness research institute in the nation. She brings a rich skill set to this research project, including a more than 10 year assignment as a US Forest Service bench scientist where she explored the sensitivity of forests to simulated changes in climatic conditions, land use change, and pest and pathogen interactions in the southern US. She then served more than 10 years as an Assistant Station Director for the USDA Forest Service Southern Research Station. Her current science interests include studying the effects of varied disturbance agents on forest regeneration through time and space in wilderness ecosystems.

Confirmed Project Partners (list organization name only)*	Primary Contact Name & Title	Complete Contact Information (Email, Phone Number, Mailing Address)	Brief Summary of Individual and Organizations Qualifications and Experience (150 words or less)
University of Montana	Dr. John Goodburn Associate Professor College of Forestry and Conservation 32 Campus Drive University of Montana Missoula, MT 59812	University of Montana 32 Campus Drive University of Montana Missoula, MT 59812 (406) 243-4295 John.goodburn@umontan.edu	Dr. John Goodburn's research interests include a rich array of forest ecology and silvicultural topics, including unvenaged forest management, forest stand dynamics, and modeling the development of forest regeneration. He has served in both research and forest management positions, including applied hardwood silviculture in the Midwestern U.S. His combined management and academic work experiences will help ensure that the proposed research will yield practical tools for land managers.

Project Goals	Activities	Tangible Outcomes	Measure Success	Grant Funds	In-Kind or Matching Funds
Goal 1: Test function of REGEN prediction Model	<ul style="list-style-type: none"> <li>- Complete regeneration field inventories.</li> <li>- Analyze data.</li> <li>- Publish results.</li> </ul>	Regeneration source rankings are tested and revised as needed.	Refereed journal manuscripts are completed-ready for submission to journals.	\$40,000: Dr. Berg's salary; includes all data analysis and manuscript writing.	<p>\$10,000: Dr. Berg's travel expenses are contributed.</p> <p>\$20,000: Field data collection normally performed by technicians will be performed by Dr. Berg at no cost to the project.</p> <p>\$10,000: Dr. Fox contributes his oversight of all project activities and co-authorship of all manuscripts.</p> <p>\$5,000: Mr. Creighton contributes his time to consult and co-author all manuscripts.</p> <p>\$12,000: Dr. Goodburn contributes travel and time to complete field data collection work and co-author all manuscripts.</p> <p>\$5,000: Mr. Hogg contributes time to coauthor and review manuscripts.</p>

Project Goals	Activities	Tangible Outcomes	Measure Success	Grant Funds	In-Kind or Matching Funds
Goal 2: Ensure FVS model accurately incorporates REGEN model in model outcomes	<ul style="list-style-type: none"> <li>- Program FVS to incorporate regeneration outcomes.</li> <li>- Test FVS regeneration predictions.</li> </ul>	<ul style="list-style-type: none"> <li>- REGEN model predictions are incorporated in FVS</li> </ul>	<ul style="list-style-type: none"> <li>- REGEN predictions are fully functional within FVS modeling platform.</li> </ul>	\$10,000: Dr. Berg's salary; includes all data analysis and data preparation for use in FVS.	\$10,000: US Forest Service staff contribute time to oversee model development. \$5,000: Mr. Hogg contributes time to monitor model development and incorporate REGEN findings in other growth and yield models used by Plum Creek Corp.
Goal 3: Transfer information on FVS and REGEN models utilities to landowners	<ul style="list-style-type: none"> <li>- Hold workshop(s) to instruct landowners on use of FVS to predict forest regeneration.</li> <li>- Complete manager-friendly synthetic report on use of REGEN model with FVS.</li> </ul>	<ul style="list-style-type: none"> <li>- Forest landowners learn how to use REGEN and FVS.</li> </ul>	<ul style="list-style-type: none"> <li>- Landowners gain understanding of regeneration outcomes after disturbance in forest stands.</li> </ul>	\$10,000: most funds needed for logistics, e.g. meeting room and ancillary costs.	\$5,000: Mr. Creighton contributes his time and expertise to assist with landowner workshop(s). \$5,000: Ms. Fox contributes effort to introduce the REGEN model and its applications at wilderness workshops. \$20,000: US Forest Service contributes editing expertise and all synthetic document preparation and printing costs. \$5,000: Virginia Tech contributes web site development expertise.

### Project Timeline

Please provide a timeline for completion of the project. Projects may be up to three years in length, and should be for 9 months at a minimum. The timeline should reflect when you will deliver upon the goals and outcomes as outlined above.

Project Goals	Activities	Time frame and completion	Tangible Outcomes	Time frame and completion
Goal 1: Test function of REGEN prediction model	<ul style="list-style-type: none"> <li>- Complete regeneration field inventories.</li> <li>- Analyze data.</li> <li>- Publish results.</li> </ul>	<ul style="list-style-type: none"> <li>- Field work takes place July to October 2014.</li> <li>- Data analyzed November 2014 to July 2015.</li> <li>- Draft manuscripts written August 2015 to July 2016.</li> </ul>	<ul style="list-style-type: none"> <li>- Regeneration source rankings are tested and revised as needed.</li> </ul>	<ul style="list-style-type: none"> <li>- All manuscripts completed (including contributions by co-authors, editing) and ready to submit to journals by December 2016.</li> </ul>
Goal 2: Ensure FVS model accurately incorporates REGEN model in model outcomes	<ul style="list-style-type: none"> <li>- Program FVS to incorporate regeneration outcomes.</li> <li>- Test FVS regeneration predictions.</li> </ul>	<ul style="list-style-type: none"> <li>- Work on bringing REGEN into FVS August 2015 to May 2016.</li> <li>- Accuracy testing May 2016 to November 2016.</li> </ul>	<ul style="list-style-type: none"> <li>- REGEN model predictions are incorporated in FVS</li> </ul>	<ul style="list-style-type: none"> <li>- Final work on FVS completed by December 2016.</li> </ul>
Goal 3: Transfer information on FVS and REGEN model utilities to landowners	<ul style="list-style-type: none"> <li>- Hold workshop(s) to instruct landowners on use of FVS to predict forest regeneration.</li> <li>- Complete manager-friendly synthetic report on use of REGEN model with FVS.</li> </ul>	<ul style="list-style-type: none"> <li>- Workshop(s) held March to June 2017.</li> <li>- Draft synthetic document complete by June 2017.</li> </ul>	<ul style="list-style-type: none"> <li>- Forest landowners learn how to use REGEN and FVS.</li> </ul>	<ul style="list-style-type: none"> <li>- Workshop(s) complete and follow up contacts to answer landowner questions by June 2017.</li> </ul>

**Project Budget**

Please fill out the table below to illustrate the entire Project budget. SFI Inc. will not award any funds for organization overhead costs, which include but are not limited to, office rent or maintenance, utilities, temporary hires, etc. While some portion of the grant may be used to offset staff salary and benefits, the focus should be on on-the-ground activities. You may modify this table to fit your needs, however please ensure your budget addresses the following components:

1. Percent of budget allocated to each staff person working on the Project
2. Total Operating costs divided up by relevant topics such as travel, meetings, communications, education & outreach etc.
3. Identify any in-kind support allocated to this Project by each project partner
4. Identify any matching funds allocated to this Project by each project partner

<b>Expenditure</b>	<b>Amount</b>	<b>In-Kind Contributions Virginia Tech</b>	<b>In-Kind Contributions Virginia Dept. of Forestry</b>	<b>In-Kind Contributions Plum Creek Corp.</b>	<b>In-Kind Contributions University of Montana</b>	<b>In-Kind Contributions U.S. Forest Service Aldo Leopold Research Institute</b>
<b>Staff Salary and Benefits</b>	\$50,000 (Berg)	\$10,000 (Fox)	\$5,000 (Creighton)	\$10,000 (Hogg)	\$5,000 (Goodburn)	
<b>Operating Costs</b>						
Research Activities		\$20,000 (field data collection by Berg)			\$5,000 (field data collection by Goodburn)	
Meetings						
Travel		\$10,000 (Berg travel)			\$2,000 (Goodburn travel)	
Education & Outreach	\$10,000 (logistics)		\$5,000 (Creighton)			\$5,000 (Fox)
Communications		\$5,000 (web site development)				
<b>Total</b>	<b>\$60,000</b>	<b>\$45,000</b>	<b>\$10,000</b>	<b>\$10,000</b>	<b>\$12,000</b>	<b>\$5,000</b>

\*list sources and amounts of any matching funds or in-kind contributions for each project partner

In addition to the above in-kind contributions, the US Forest Service Forest Management Staff (FVS experts) will contribute approximately \$10,000 in staff time to oversee Dr. Berg's efforts in calibrating the REGEN model's function in the Forest Vegetation Simulator. The Forest Service will also support the production of the synthetic document through publication of a FS-GTR type manuscript. Note: if SFI opts for "proof of concept" funding of \$20,000, there would be commensurate reductions of in-kind contributions

## Background- Forest Regeneration Prediction Tools for Forest Landowners

Forest regeneration shapes the values of essentially all southern Appalachian and other inland ecosystem biological resources; e.g. wildlife species require specific forest structures and compositions to reproduce and survive, different tree species vary in their abilities to sequester carbon, etc. Forest managers seek accurate predictions of tree regeneration following natural and anthropogenic disturbances to meet multiple land management objectives. However, we lack definitive understanding of forest understory responses to varied disturbances in the southern Appalachians, Piedmont, and other inland forest ecosystems. Research has sought to remedy this lack of understanding, but most investigations have yielded only short-term (generally less than 5 years) results. These efforts have helped frame our understanding of early forest stand dynamics, but have done little to inform forest managers about the suite of successful regeneration sources likely to grow into the forest canopy. Specifically, forest managers lack information on hardwood understory success at crown closure, a critical life stage, usually reached within 10 to 15 years after large gap ( $\geq$  .2 acres) creating disturbances (Appendix A- fig. 1) (Loftis 1989). Further, managers seek to understand how successful regeneration sources then grow into sapling and pole size trees capable of producing acorn and other food sources for wildlife.

Loftis has developed a multi-species regeneration prediction model, REGEN, which predicts tree regeneration successors at crown closure (Appendix A- fig. 2) (Boucugnani 2005; Loftis 1989). REGEN is widely seen as the most useful and flexible of all regeneration predictive tools for mixed hardwood-pine stands. The REGEN model is now being tested to determine prediction accuracy. Because long-term investigations of regeneration success (from establishment through canopy closure within the same stand) are rare, tests of Loftis' model have generally relied on a chronosequence approach to test model outcomes (Vickers et al. 2011). Essentially, chronosequence studies trade space for time where regeneration has been inventoried in mature stands before harvest and in other stands that have reached crown closure; pre-harvest vs. crown closure regeneration sources can then be compared to test model prediction accuracy.

Chronosequence investigations can provide much needed information about model accuracy. However, chronosequences are fraught with problems- site quality and disturbance histories often vary widely among different stands used for pre- vs. post-harvest comparisons (Elliott and Loftis 1993). These anomalies can substantially confound model tests. Clearly, following regeneration success on the same stands through time that share common site quality and disturbance histories would be the "gold standard" for testing REGEN accuracy.

We propose to test the accuracy of REGEN by summarizing our findings of southern inland forest tree regeneration success across several empirical studies started in the mid-1990s where subject stands are now at or just beyond canopy closure. Because regeneration has been inventoried pre-disturbance and also post-disturbance at or near crown closure on the same stands, these data sets would provide the ideal test-bed to validate Loftis' REGEN model.

Beyond simply testing the accuracy of REGEN, this work will highlight the relationships among understory responses and environmental gradients in hardwood/ pine ecosystems. Foresters would gain understanding of the probabilities of natural and artificial regeneration success at or near crown closure as a function of varied tree canopy densities, site qualities, and disturbance mechanisms.

We plan to take our investigation one step further for this 2014 proposal. Because approximately 30 percent of our regeneration quadrats (sample areas) are now several years beyond canopy closure, we will characterize (survivorship, growth, species differences) how successful regeneration transitions to sapling and pole size trees that can begin producing acorns and other essential wildlife resources and sawtimber. These quadrats were also measured at crown closure, so our research would include complete life stage analysis up to sapling or pole size stems. Managers have long sought information on this stage of stand dynamics, but few studies have followed the development of inland hardwoods and conifers from stand initiation to pole size.

Specific studies that would be used to test the accuracy of REGEN predictions include (all investigations are located in the southern Appalachians):

- Understory responses in and around forest gaps following a hurricane.
- Understory responses following shelterwood /underburning.
- Understory responses after single tree selection cutting.
- Dr. Phil Radtke's long-term regeneration plots.

These investigations span a wide array of site qualities ranging from xeric to mesic with varied soil fertilities and canopy gap sizes. All investigations include inventories of pre-harvest and post-harvest tree regeneration sources by species, origin (seedling vs. sprout), survivorship and dominance. Study hypotheses will likely be tested with mixed model regression analyses. Response variables will include seedling survivorship, basal diameter growth, height growth, and dominance. Final regeneration inventories and model outcomes will serve as the end point sources to test REGEN (appendix A).

Next, accuracy test results would be used to calibrate REGEN's performance and prepare the model to be passed successfully to the Forest Vegetation Simulator (FVS) (Dixon 2013). FVS offers forest managers a flexible growth and yield projection platform supported by expert full time U.S. Forest Service staff. Calibrating REGEN's function within FVS would enable forest managers to accurately predict regeneration outcomes in the southern Appalachians. This predictive capability is essential for managers seeking to predict mast production, wildlife cover, and future timber management opportunities after forest disturbances. Additionally, this study's crown closure to pole dynamics results would be used to calibrate FVS small tree growth and yield.

Some meta-analysis may be conducted to create an integrated data set that would speed hypothesis testing and overarching understanding of key points.

*Why is this research needed?* REGEN is currently based solely on expert opinion. Regeneration source rankings could vary widely among site qualities. Without rigorous quantitative tests based on long-term data analysis, users simply do not know if REGEN predictions are accurate. Inaccurate rankings could result in substantial problems for landowners. For example, if REGEN incorrectly predicts that 100 oak seedlings per acre will achieve dominance at crown closure when the actual number of dominant oaks is only 10, the landowner may face a huge downfall in hard mast production for wildlife in the future. Our proposed research would test the model and customize REGEN by site quality, stand composition and structure, and disturbance history. Research results would be used to pass accurate REGEN model rankings to FVS to ensure that landowners can accurately predict the number of dominant oaks and other species at crown closure.

*The proposed work clearly meets the following 2014 SFI special-interest categories (emphasis highlighted in yellow):*

- Forest Health: Proposals are encouraged that (1) provide guidance, technical assistance, or the business case to forest landowners about working forest conservation easements (note that this grant program will not fund acquisition of conservation easements); (2) examine the intersection between healthy, managed forests and public benefits, including clean air and water, wildlife habitat, and other ecosystem functions, or 3) examine the role of fire, pest, disease and climate change.
- Wildlife, Fish and Biodiversity: Proposals are encouraged that (1) protect, promote, illustrate, improve or restore key wildlife habitat in managed forests impacted by natural disturbances such as fire or flood, or (2) protect, promote, illustrate, improve or restore key biodiversity, aquatic species, or wildlife habitat practices to meet SFI Standard requirements, or (3) demonstrate and/or establish the role of one or more successional habitats as they may benefit wildlife or biodiversity in managed forests.

This proposal precisely meets the requirements for forest health: "...examine the intersection between healthy, managed forests and public benefits, including...wildlife habitat, and other ecosystem functions... examine the role of fire, pest, disease and climate change." and also clearly meets the wildlife and biodiversity category. Of particular concern to land managers is their lack of knowledge about future tree species composition after timber harvest. Lack of knowledge about masting potential, especially for the oaks, is critical. If funded, the proposed work will calibrate easy to use tools to predict the successful suite of regeneration sources, including the number of successful oaks and other masting species important to wildlife.

Further, no forestry issue so clearly meets the needs of advancing SFI's number one principle, *Sustainable Forestry: ...practicing a land stewardship ethic that integrates reforestation and the managing, growing, nurturing and harvesting of trees for useful products and ecosystem services ...* as reforestation. Essentially all forest ecosystem services stem from arborescent species composition and structure. And, successful reforestation is that which meets land owner objectives. The proposed regeneration modeling work would enable landowners to determine if they can meet their objectives.

Project outcomes would be wide-reaching and would include:

- The proposed work meets multiple SFI objectives, standards and elements.
- Forest managers would be able to meet SFI sustainability objectives.
- SFI would sponsor the refinement of practical, applied tools for forest managers.
- Improved reforestation prediction tools that will change federal and state government agency policies and behavior. Specifically, land owners will be able to improve state-guided Stewardship plans with clear and focused predictions of forest regeneration after management activities such as forest cuttings.
- Improved landowner knowledge about reforestation after forest disturbance.
- Significant advancement of the preeminent growth and yield modeling system in the United States, the Forest Vegetation Simulator (FVS).
- Clear recognition of SFI as a leader in science-based forest management. Project collaborators would be willing to attend SFI meetings as needed to relay project progress.
- 3 to 6 peer reviewed journal articles (at least one per study) that would form the scientific foundation for practical tools.
- ***Transfer of state of the science regeneration knowledge to land owners, forestry consultants, and land managers.***
- ***A synthetic, manager-friendly state of knowledge publication with little technical jargon, many photos and figures, and multiple real-life examples.***
- ***Project-based tools developed or modified with this investigation would be posted at Virginia Tech and Virginia Division of Forestry web sites.***

#### Staged research funding

We understand that SFI grant funds are limited and sought by many proposers. We offer “proof of concept” as an alternative to full funding. Specifically, we could complete data collection and analysis of one of our empirical investigations (likely the post-hurricane vegetation response study because it includes a wide variety of stand structures and compositions), complete refereed journal outputs and a synthetic technology transfer document for this study, and suggest changes in REGEN rankings for initial SFI funding of \$20,000. This information would be used to improve FVS-modeled regeneration predictions and would serve land managers well as a stand-alone effort. If no additional funds were available to complete our research, SFI’s money would have been well spent. However, this truncated work would fall short of our full goal of evaluating a wide array of stand compositions, disturbance histories, and site qualities. We hope that SFI leadership would approve project completion funding after reviewing our initial findings. We firmly believe that our entire project merits full funding.

## Appendix A. REGEN Model Background

The REGEN Model predicts the competitive ranking of post-disturbance regeneration sources and which of these will attain dominant or codominant status at crown closure (fig. 6) based on tree species and origin (from seed or sprout) (fig. 7). REGEN is based on expert opinion and incorporates the knowledge of a wide array of expert silviculturists and forest managers (Boucugnani 2005).

For example, yellow poplar stump sprouts grow faster in height than any other regeneration source in southern Appalachian cove sites. Yellow poplar sprouts are therefore ranked highest in probability to gain dominance at canopy closure. Small white oak seedlings grow slower than any associate on the same sites; they are therefore rated lowest in probability to gain dominance (table 1).

REGEN currently operates as an easy to use Excel application and as a web-based tool (Radtke 2014); it features stochastic regeneration events and accommodates varied plot sizes and site qualities.

Our proposed research would test and recommend changes to current rankings, then port these results to the Forest Vegetation Simulator.



Fig. 1. Dominant red oak at crown closure.

**Table 1—Ranking of expected postharvest performance**

Ranking	Expected postharvest performance
1	Yellow-poplar-SP, black cherry-SP, black locust-SP, basswood-SP
2	Red maple-SP, sugar maple-SP, silverbell-SP, Fraser magnolia-SP, cucumber-SP, ash-SP, birch-SP, white pine-L, yellow-poplar-L, black cherry-L, birch-L
3	Basswood-L, yellow-poplar-M, black cherry-M, birch-M, silverbell-L, Fraser magnolia-L
4	Oak-SP, oak-L, ash-L, red maple-L, cucumber-L, hickory-SP, dogwood-SP, sourwood-SP, blackgum-SP, beech-SP, buckeye-SP, yellow-poplar-S, birch-S, black cherry-S, sugar maple-L, hemlock-L, white pine-M
5	Yellow-poplar-SE, black cherry-SE, birch-SE, oak-M, basswood-M, ash-M, red maple-M, silverbell-M, Fraser magnolia-M, cucumber-M, white oak-SP, hickory-L, dogwood-L, sourwood-L, blackgum-L, beech-L, buckeye-L, fire cherry-SE, sugar maple-M
6	Hickory-M, white oak-M, sourwood-M, blackgum-M, beech-M, buckeye-M, hemlock-M, white pine-S
7	Oak-S, ash-S, basswood-S, silverbell-S, Fraser magnolia-S, red maple-S, dogwood-M
8	White oak-S, hickory-S, dogwood-S, sourwood-S, blackgum-S, beech-S, buckeye-S

SP = stump sprout; L = large advance reproduction (> 4 feet; > 3 feet for yellow-poplar); M = medium advance reproduction (> 2 feet; ≥ 1 feet < 3 ft for yellow-poplar); S = small advance reproduction (< 2 feet; < 1 ft for yellow-poplar); SE = new seedlings established after harvest.

Fig. 2. Example of REGEN model rankings. Sources sharing the same ranking are expected to attain approximately the same dominance status at crown closure.

## Appendix B: Background on individual investigations

### ***Understory responses in and around forest gaps following a hurricane (figs. 3, 4, 5; table 1).***

The effects of wind on upland hardwood forest structure and composition have been studied mostly in the context of either small 1 or 2 tree death openings (gap-phase disturbance), or in retrospective studies of ancient disturbances. Larger (> 0.1 ha) wind-created openings are common across Southern Appalachian landscapes and can be an important factor in shaping understory colonization, growth, and survival. Researchers have investigated the relationships of tree seedling survivorship and growth, tree seedling density, herbaceous species richness, shrub cover densities, soil moisture, soil nutrients, and solar radiation received beneath tree canopies to position in and around large, hurricane-created gaps on the Bent Creek Experimental Forest (near Asheville, NC).

### ***Understory responses following shelterwood /underburning (figs. 6 and 7; table 1).***

Managers lack effective treatments to enhance white pine and oak regeneration on mixed hardwood pine stands dominated by shrub understories. Prescribed fire may reduce shrub competition and enable pine and hardwoods to establish and grow. Scientists have found that oak regeneration requires at least 10 to 15 percent of full sunlight to colonize and grow to crown closure (Gottschalk 1985). Most mature pine/hardwood stands can be treated with variants of the shelterwood regeneration system to achieve this light level. Researchers installed a pre-harvest burn/shelterwood cutting experiment on the Blue Valley Experimental Forest (near Highlands, NC) to learn if this treatment could foster the establishment and growth of white pine and hardwood seedlings.

### ***Understory responses after single tree selection cutting (fig. 6, table 1).***

Managers need a full complement of silvicultural tools to effectively manage eastern white pine (*Pinus strobus* L.) and hardwoods within the southern highlands. Implementing treatments that create continual high forest canopy cover may meet many management goals, such as visual quality. The single tree selection reproduction method creates continual high forest cover through time and could potentially be used to regenerate shade tolerant eastern white pine. However, regenerating intermediate shade tolerant oaks within these sites could be problematic. Researchers installed a long-term single tree selection trial on the Blue Valley Experimental Forest to test the hypothesis that white pine-hardwoods can be successfully regenerated and grow into progressively larger size classes by using the single tree selection method.

Table 1: Sampling protocols used in 3 post-disturbance inland forest vegetation studies.

<b>Study</b> <i>Experimental design notes are italicized.</i> (past publications in parentheses)	<b>Number quadrats</b>	<b>Circular quadrat size (varied quadrat sizes share same center)</b>	<b>Vegetation measured</b>	<b>Number tagged seedlings per quadrat</b>	<b>Past measurement times</b>	<b>Environmental variables</b>
<b>Post-hurricane</b>  <i>Gradient analysis of natural disturbance event</i> (Berg 2003; Berg and Van Lear 2003 and 2004)	269	1/1000 acre (herbs) 1/300 acre (seedlings, shrubs) 1/100 acre (midstory and overstory)	Tree seedlings, shrubs, herbs.	2 seedlings tagged (also tagged and measured dbh of 2 midcanopy and overstory trees $\geq$ 1.5 inches dbh in 1/100 acre quadrat)	1996, 1997, 1998, 2005	Solar radiation (measured with hemispherical photography and light sensors, fig. 3); soil moisture and nutrients; canopy cover; position in and around gaps, coarse woody debris and wind-felled tree crown debris and pit and mound coverage; site quality covariates that reflect topographic position, extent of concave/convex slope, exposure to sun.
<b>Shelterwood/under-burn</b>  <i>Designed study-randomized complete block; 3 replicates</i> (Berg et al. 2011; Clinton et al. 1998)	90	1/100 acre (seedlings and shrubs)	Tree seedlings, shrubs, overstory.	5 seedlings tagged (also tagged and measured dbh of 3 overstory and midcanopy trees $\geq$ 1.5 inches nearest quadrat center to monitor post-fire survivorship)	1995, 1998, 2000, 2005	Solar radiation (hemispherical photography); overstory and midcanopy basal area, percent of 1/300 acre quadrat with mineral soil exposure; fire consumption of down wood, litter, and humus; fire energy release measured with heat-sensitive paints; site quality covariates as with post-hurricane study.
<b>Single tree selection</b>  <i>Large-scale case study with 2 residual stand densities- 40 and 70 sq. ft. basal area per acre</i>	138	1/300 acre (seedlings) 1/40 acre (saplings) 1/10 acre (overstory)	Tree seedlings, shrubs, midcanopy, overstory.	2 seedlings tagged (all overstory and midcanopy trees $\geq$ 1.5 inches were tagged, dbh measured in 1/40 acre and 1/10 acre quadrats).	1996, 2001, 2004	Overstory and midcanopy basal area; Seedling quadrat litter depth; percent of 1/300 acre quadrat with mineral soil exposure; site quality covariates as with post-hurricane study.

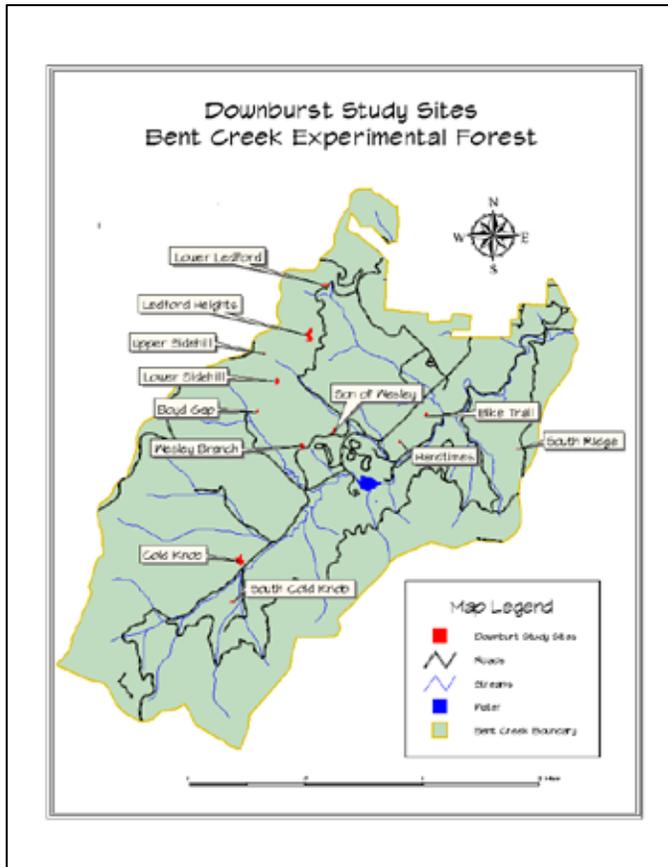


Fig. 3: Hurricane Opal gap locations.

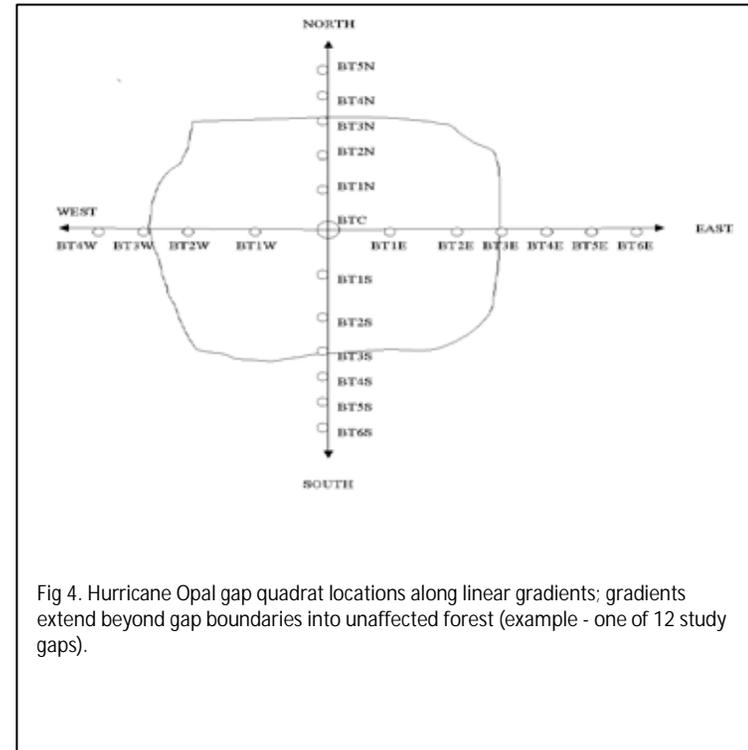


Fig 4. Hurricane Opal gap quadrat locations along linear gradients; gradients extend beyond gap boundaries into unaffected forest (example - one of 12 study gaps).

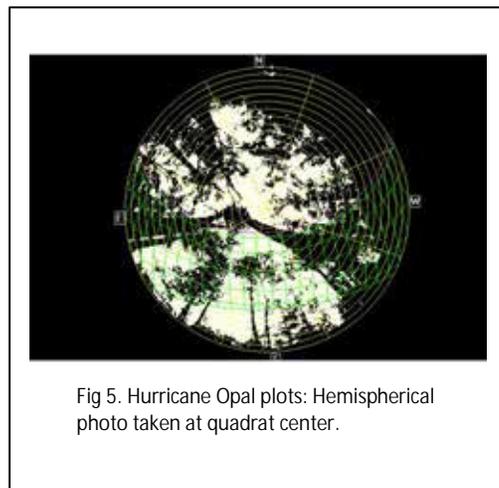


Fig 5. Hurricane Opal plots: Hemispherical photo taken at quadrat center.

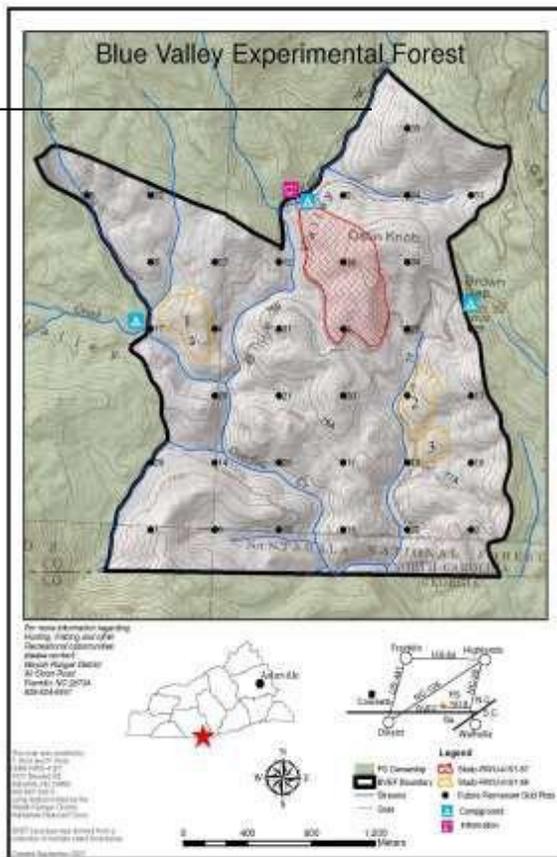


Fig 6. Blue Valley Experimental Forest: shelterwood/underburn- shaded red; single tree selection- shaded yellow.

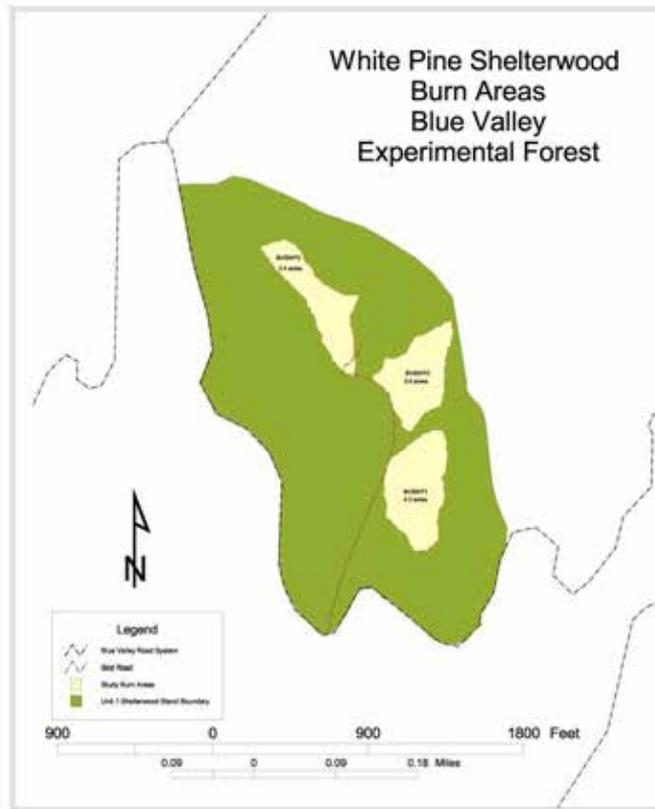


Fig 7. Blue Valley Experimental Forest: shelterwood/underburn burn units (each burn equals approximately 3 acres).

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**SFI Inc. Conservation & Community Partnerships Grant Program Request for Proposals  
Directions and Grant Application for 2014 Grant Projects**

**Grant Application Template**

Organization Information

Lead Organization Name and Address	The American Chestnut Foundation 160 Zillicoa St., Suite D Asheville, NC 28801
Name, phone and email for Project Director	Bryan Burhans, President and CEO (828) 281-0047, bryan@acf.org
Lead Organizational Mission Statement (25 words or less)	To restore the American chestnut to our eastern woodlands to benefit our environment, our wildlife, and our society
Lead Organization Annual Operating Budget	\$2,720,243
Two references (Name, Organization, email and phone) who can speak to the relevance and potential impact of the Project (these should not be the same as your Project partners):	Dr. Patrick N. Angel, Ph.D. Soil Scientist, Office of Surface Mining Reclamation and Enforcement, <a href="mailto:pangel@osmre.gov">pangel@osmre.gov</a> , (606) 878-6440  Dr. Kim Steiner, Ph.D. Professor of Forest Biology, Penn State University, <a href="mailto:kcs@psu.edu">kcs@psu.edu</a> , (814) 865-9351

Project Overview

Project Title	Total Length of time for completion of project (in months, from commencement to final reporting)	Amount Requested from SFI	Total Project Budget (including matching funds and in-kind contributions) *	Brief Project Summary (50 words or less)	What element(s) of the SFI 2010-2014 Program are addressed by your Project? (Please cite the Standard Component(s))
Reforestation of a surface mined land to native hardwoods	30 months	\$39,138	\$66,884	This project will return 15 acres of a reclaimed surface mine to native hardwoods, including TACF's potentially blight-resistant American chestnuts. The area has been reclaimed in the traditional manner of compacting the	(Objective 2, Performance Measure 2.1, indicator 3 & 7) (Objective 2, Performance Measure 2.2, Indicators 1-6) (Objective 2, Performance Measure 2.4, Indicator 1)

				surface and seeding competitive non-native grasses and legumes.	(Objective 2, Performance Measure 2.5, Indicator 1) (Objective 4, Performance Measure 4.1, Indicator 7)
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### Project Partners

Confirmed Project Partners (list organization name only)	Primary Contact Name & Title	Complete Contact Information (Email, Phone Number, Mailing Address)	Brief Summary of Individual's and Organizations Qualifications and Experience (150 words or less per partner)
Green Forests Work	Dr. Chris Barton, President	<a href="mailto:barton@uky.edu">barton@uky.edu</a> (859) 257-2099 458 Huguelet Drive Univ. of Kentucky Lexington, KY 40546	Dr. Barton is an Associate Professor of Forest Hydrology at the University of Kentucky and a member of the Appalachian Regional Reforestation Initiative's Science Team. Green Forests Work is a non-profit organization that is a descendant of ARRI. Since 2009, GFW and ARRI have worked closely together to supervise more than 125 tree planting events on reclaimed mines in 8 Appalachian states. Their efforts have resulted in more than 1 million trees being planted across more than 1,600 acres.
Molpus Timberlands Management	Mark James, Property Manager	<a href="mailto:mjames@molpus.com">mjames@molpus.com</a> (859) 623-3088 1232 Lancaster Road, Suite A Richmond, KY 40475	Mark James has been with Molpus Timberlands Management LLC for 15 years. He currently oversees management activities on 8 properties in 5 states. Molpus Timberlands Management, LLC manages approximately 1,599,000 acres in 17 states. 1,580,000 of those acres are source certified to the SFI Standard. In 2012, Molpus Timberlands Management, LLC was presented the national "SFI Leadership in Conservation" award on these properties at

			SFI's annual conference along with the Rocky Mountain Elk Foundation and the Kentucky Department of Fish and Wildlife Resources for management beneficial to and contributions towards the restoration of elk herds to their historic ranges in eastern Kentucky.
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Project Details

American chestnut has been functionally removed as a dominant hardwood from its native range for more than 80 years by an introduced fungal pathogen, known as the chestnut blight. Since 1983, The American Chestnut Foundation (TACF) has been breeding chestnuts for blight resistance and American chestnut's characteristics. TACF's work has culminated in the production of Restoration Chestnuts. The restoration of American chestnut provides SFI Program Participants the opportunity to enrich managed forests by establishing a fast growing hardwood for fiber, mast, and wildlife habitat while helping TACF learn which environments are suitable for chestnut restoration (Objective 2, Performance Measure 2.5, Objective 1).

This proposed project is a collaborative effort between The American Chestnut Foundation (TACF), Green Forests Work (GFW), and Molpus Woodlands Group to reforest approximately 15 acres of land that was impacted by mining activities. The land is located in northern Claiborne County, Tennessee near Cumberland Gap National Park at approximately 36° 32' 13"N -83° 51' 53"W (see attached map). This area is SFI certified forest owned by Molpus Woodlands Group and was forested prior to the mineral extraction, but was heavily graded during reclamation, returned to a grassland and is currently dominated by non-native grasses and exhibits impaired seedling regeneration. We intend to prepare the site by implementing the Appalachian Regional Reforestation Initiative's Forestry Reclamation Approach (FRA). The FRA was developed for reforesting land disturbed by mining and calls for loosening the compacted ground and applying herbicides to control competing vegetation to aid seedling establishment. The site will be planted with native high-value hardwoods and wildlife trees, including Restoration Chestnuts 1.0 – these are TACF's most advanced, potentially blight-resistant American chestnuts (Objective 2, Performance Measure 2.1, Indicators 3 & 7). Some of the biggest challenges to successful reforestation of mined lands include vegetative competition and soil compaction from heavy equipment. To overcome these obstacles, invasive exotic species which could present an impediment to reforestation such as autumn olive will be treated with selective herbicides (Objective 2, Performance Measure 2.2, Indicators 1-6; Objective 2, Performance Measure 2.4, Indicator 1; Objective 4, Performance Measure 4.1, Objective 7). The land will be cross-ripped on an 8-foot spacing to a depth of 3 feet using a bulldozer with a ripping shank. The site will then be planted with bare root seedlings at 681 trees/acre in early 2015 by a combination of volunteer and professional tree planters. Seedling success will be measure through fixed radius plots during the fall for the first 2 growing seasons after planting to ensure stocking standards of 450 stems/acre (including volunteer seedlings) are met.

The Appalachian Regional Reforestation Initiative (ARRI) was created in 2004 in an effort to transfer decades of mined land reforestation research into practical application on a large scale. ARRI is a collaborative composed of state and federal regulatory agencies, research universities, coal companies, environmental groups, and other stakeholders. While ARRI is focused more on influencing the active mining industry to do reforestation reclamation as the immediate post-mining land use, Green Forests Work (GFW) was created as a non-profit spin-off to address the roughly 750,000 acres of lands that have already been mined and reclaimed in a way that severely limits tree growth and natural forest succession. The lands that GFW addresses were

reclaimed according to state and federal laws and regulations, but are often not being used as intended by the post-mining land use of “hay/pastureland.” Lacking proper management, many areas have a high probability of being colonized by invasive species and converting to unproductive scrub land. Since the lands were reclaimed according to the laws and regulations, no obligation rests on any entity to reforest these lands. GFW’s goals are to coordinate and implement mine reforestation projects that (1) plant high-value native trees on reclaimed coal mined lands in Appalachia; (2) increase the survival rates and growth rates of planted trees through science-based land preparation techniques; and, (3) expedite the establishment of forest habitat through natural succession. Since 2009, ARRI, GFW, TACF, and partnering agencies have planted more than 1,000,000 trees on approximately 1,600 acres of surface mines in 8 states.

This project is intended to demonstrate successful reforestation of 15 acres of land that has been disturbed by mining activities. There are many very important ancillary benefits to restoration of these degraded lands, including but not limited to: carbon sequestration and climate change mitigation, improvement of downstream water quality, reduction of flash flooding, habitat for wildlife species (including species of concern such as cerulean and golden-winged warblers), local economic development through the establishment of the forests, and creation of an improved resource base for future timber and forest products. If this project is funded, it will occur adjacent to a similar reforestation project examining the effects of different cover crops and weed management strategies that could potentially benefit planted seedlings on mined lands. Numerous wildlife species that depend on young forest habitat in the eastern United States are experiencing population declines and many state wildlife agencies list young forest as priority habitats. For the first 5-20 years, this project will create early successional habitat in close proximity to grasslands and mature forest, which would provide the horizontal and vertical structure required by golden-winged warblers and other species that rely on early successional habitat. Prime areas of golden-winged warbler habitat overlap with the minefields of KY, WV, VA, TN, MD, and PA. This same geographic area also overlaps the native range of the American chestnut, providing an opportunity to establish founder populations of potentially blight-resistant American chestnut, create early successional habitat, and to eventually restore mine lands to healthy forest, creating all of the ecosystem services that forests provide. As the forest matures, it will reduce fragmentation, benefitting forest interior dependent species such as cerulean warblers, scarlet tanagers, and countless other species. The information gained through this project and the adjoining project could influence decisions and planning of similar and larger mined land reforestation efforts in the near future.

This project is touched upon by several of SFI’s conservation categories, including “Forest Health,” “Water,” and “Capacity Building,” but directly addresses the fifth conservation category, “Wildlife, Fish and Biodiversity.” This project would restore key biodiversity and wildlife habitat, and establish the role of early successional habitat to benefit wildlife and biodiversity in managed forests. Although lands disturbed by mining are not directly addressed in the SFI Standard, this project is applicable to SFI’s mission by creating a demonstration area that will help landowners make informed decisions about reforesting mined lands using the best available methodologies. This project could also help SFI develop Standards to address forested lands that will be mined and returned to forest or fish-and-wildlife habitat as the post-mining land use and lands that were previously mined and are certified to the SFI Standard, but could benefit from additional inputs to accelerate the development of productive forest.

Green Forests Work holds volunteer tree planting events to educate the public about mined land reforestation and increase community involvement. We anticipate that 25 volunteers will participate in an event related to this project. We will also hold an educational workshop for local landowners, volunteers, and the public to inform them about mine land reclamation, chestnut restoration, and the importance of forests to society. Additionally, since this project will be located adjacent to a similar reforestation project, it will be act as an outdoor classroom for workshops hosted by the University of Tennessee, the Appalachian Regional Reforestation Initiative, Green Forests Work, Office of Surface Mining Reclamation and Enforcement and other partnering entities.

As a recipient of a grant from SFI Inc., TACF will publicize the project in our e-newsletter, our magazine *The Journal of The American Chestnut Foundation* and through our social media outlets such as Facebook and Twitter. In addition, we will send out a press release to national and local media about the project and will speak about the project at our annual meeting, as well as at the SFI Annual Conference.

Project Goals	Actions	Tangible Outcomes	Measure Success	Grant Funds	In-Kind or Matching Funds
Reduction of exotic invasive species	Targeted, selective herbicide applications	15 acres with increased desirable vegetation	Complete or nearly complete eradication of woody invasive species		\$1,000
Loosening compacted ground	Cross-ripping to 3' deep with a bulldozer or excavator	15 acres of de-compacted ground	Visual assessment of ripping pattern and increased microtopography	\$18,000	
Reforestation and the creation of early successional habitat depended upon by wildlife	Hand-planting a diverse mix of 1-0 bareroot seedlings	10,200 seedlings planted; 25 number of volunteers engaged; 15 acres of early successional habitat created	65% survival after 2 growing seasons (450 stems/acre including volunteers)	\$20,852	\$22,523
Educate approximately 20 members of the public about mine land reclamation, chestnut restoration, the importance of forest health, and SFI efforts	Hold 1 educational workshop for landowners, volunteers, and the general public	Increased public knowledge about forest health and the importance of mine land reclamation and an increase in public support for reforestation efforts and the SFI standards	Evaluations collected at the completion of the workshop will confirm that participants gained knowledge about forest health	\$286	

#### Project Timeline

July-September 2014	Mechanical and chemical control of invasive species
October 2014	Ripping and site preparation
February-March 2015	Planting of tree seedlings, planting event to include volunteers
August-September 2015	Plot establishment and survival assessment, educational workshop held for landowners and the general public
August-September 2016	Survival assessment

Project Budget

<b>Expenditure</b>	<b>SFI Grant Funds</b>	<b>Total Matching Funds</b>	<b>Source of Matching Funds*</b>	<b>In-Kind Contributions*</b>	<b>Source of In-kind Contributions</b>	<b>Total per expenditure category</b>
<b>Staff Salary and Benefits</b>						\$7,361
TACF Forester (150 hrs @ \$23/hr)	\$4,293					
TACF Forester Benefits (150 hrs @ \$5.63/hr)	\$845					
TACF Regional Science Coordinator (20 hrs @ \$23/hr)		\$460	The American Chestnut Foundation			
TACF Regional Science Coordinator Benefits (20 hrs @ \$5.63/hr)		\$113	The American Chestnut Foundation			
Green Forest Works Staff preparation and oversight of planting		\$1,650	Green Forests Work			
25 volunteers for planting event (\$11.49/hr x 10 hrs = \$114.90 each volunteer)				\$2,873	Green Forests Work	\$2,873
Ripping of ground (\$1,200/acre x 15 acres)	\$18,000					\$18,000
Tree planting (includes hardwood tree seedlings) \$500/acre x 12 acres)	\$6,000			\$1,350	ARRI/Green Forests Work	\$7,350
Cost of producing Restoration Chestnuts 1.0 (40/acre x 15 acres @ \$50 each)	\$10,000	\$20,000	The American Chestnut Foundation			\$30,000
Herbicide		\$1,000	Green Forests Work			\$1,000
Travel		\$300	The American Chestnut Foundation			\$300
<b>Total</b>	<b>\$39,138</b>	<b>\$23,523</b>		<b>\$4,223</b>		<b>\$66,884</b>



## An Environmental and Economic Analysis for the Sustainable Procurement of Wood Fibre for Bioenergy

### Organization Information

Lead Organization Name and Address	Canadian Institute of Forestry / Institut forestier du Canada (CIF/IFC) PO Box 99, 6905 Hwy. 17 West, Mattawa ON P0H1V0
Name, phone and email for Project Director	John Pineau - <a href="mailto:jpineau@cif-ifc.org">jpineau@cif-ifc.org</a> - 705-744-1715 x. 585
Lead Organizational Mission Statement (25 words or less)	CIF/IFC provides national leadership in forestry, promotes competence among forestry professionals and fosters public awareness of Canadian and International forestry issues.
Lead Organization Annual Operating Budget	\$750,000
Two references (Name, Organization, email and phone) who can speak to the relevance and potential impact of the Project	1. George Bruemmer – Natural Resources Canada - <a href="mailto:george.bruemmer@nrcan.gc.ca">george.bruemmer@nrcan.gc.ca</a> - 613-432-1204 2. Dave Morris – Ontario Ministry of Natural Resources - <a href="mailto:Dave.M.Morris@Ontario.ca">Dave.M.Morris@Ontario.ca</a> - 807-343-4006

### Project Overview

Project Title	Total Length of time for completion of project	Amount Requested from SFI	Total Project Budget	Brief Project Summary (50 words or less)	What element(s) of the SFI 2010-2014 Program are addressed by your Project? (Please cite the Standard Component(s))
“An environmental and economic analysis for the sustainable procurement of wood fibre for bioenergy”	16 months	\$85,000	\$190,000	A bioenergy case study analysis and synthesis of the fundamental differences between biomass harvests compared to current harvest practices, contrasted with natural disturbances. The study will focus on the economic viability, ecological integrity and social benefits of utilizing forest harvest residues, and residual trees for bioenergy – using Pineland Nursery model.	Given the interdisciplinary nature of this project, the proposal adheres to many of the SFI objectives used as indicators of performance: 1. Forest Management planning; 2. Forest productivity; 3. Conservation of biological diversity including forests with exceptional conservation value; 4. Efficient use of forest resources; 5. Landowner outreach; 6. Use of qualified resource and qualified logging professionals; 7. Adherence to best management practices; 8. Promote conservation of biological diversity, biodiversity hotspots and high-biodiversity wilderness areas; 9. Avoidance of controversial sources including fiber sources from areas without effective social laws; 10. Legal and regulatory compliance; 11. Forestry research, science and technology; 12. Training and Education; 13. Community involvement in the practice of sustainable forestry; 14. Public land management responsibilities; 15. Communications and public reporting; 16. Management review and continual improvement.

## Project Partners

Confirmed Project Partners	Primary Contact Name & Title	Complete Contact Information (Email, Phone Number, Mailing Address)	Brief Summary of Individual's and Organizations Qualifications and Experience (150 words or less per partner)
Pineland Forest Nursery (Pineland)	Trevor Stanley, General Manager	<a href="mailto:Trevor.stanley@gov.mb.ca">Trevor.stanley@gov.mb.ca</a> 204 426-5235 x. 2 P.O. Box 45, Hadashvile, Manitoba R0E 0X0 www.pinelandforestnursery.com	Trevor Stanley is the General Manager of Pineland. Since 1953, Pineland has provided seedlings and seed processing services for reforestation, including many SFI certified forests. Pineland grown seedlings have been planted in all regions of Manitoba, across Alberta, Saskatchewan, Ontario, Minnesota, and Michigan. Pineland makes use of leading edge bioenergy technology, and is committed to procuring its required biomass feedstocks in accordance with SFI fiber sourcing standards. Trevor will be seeking SFI certification with respect to chain of custody for Pineland's biomass procurement program. <b>Presentations:</b> <a href="http://www.awes-ab.ca/Using_Biomass_Now.html">http://www.awes-ab.ca/Using_Biomass_Now.html</a> <a href="http://cif-ifc.org/uploads/Website_Assets/TStanleyAGM.pdf">http://cif-ifc.org/uploads/Website_Assets/TStanleyAGM.pdf</a>
University of Manitoba (UofM)	John Markham, Associate Professor	<a href="mailto:John.Markham@umanitoba.ca">John.Markham@umanitoba.ca</a> 204-474-7180 481 Duff Roblin Building, Dept. of Biological Sciences, UofM, Winnipeg MB, R3T 2N2	John Markham completed his Ph.D from the University of British Columbia in 1996. Since, he has become an associate professor in the department of biological sciences at the UofM, publishing over 23 recent articles and instructing courses such as field ecology, foundations of life, and principles of ecology and plant interactions. The department has a strong focus on promoting novel synergies in emerging areas of the biological sciences. More generally, UofM is the first major research university in Western Canada, where researchers have made contributions that have had a global impact
University of Winnipeg (UofW)	Andrew Park, Associate Professor	<a href="mailto:a.park@uwinnipeg.ca">a.park@uwinnipeg.ca</a> (204)-786-9407 Dept. of Biology, University of Winnipeg, 515 Portage Ave. Winnipeg MB R3B 2E9	Andy Park has been an associate professor in the biology department at the UofW since 2004. Andy received his Ph.D from the University of Toronto, focusing on post harvest natural regeneration in pine-oak forests of the Sierra Madre Occidental, Mexico. Prior to that, he completed his M.Sc.F, from UofT in preconditioning responses of salt-tolerant and salt-sensitive provenances of <i>Acacia tortilis</i> Hayne to high salinity. UofW is recognized as an institution offering diverse programs with award winning professors.
Manitoba Hydro	Dennis St.George, Senior Biosystems Engineer	<a href="mailto:drstgeorge@hydro.mb.ca">drstgeorge@hydro.mb.ca</a> 204-360-3331 360 Portage Avenue, Winnipeg,	Dennis St. George holds the designation of a professional engineer and is the Senior Biosystems Engineer for Manitoba Hydro. Manitoba Hydro is a Provincial Crown Corporation Providing Hydro Electric Energy and Natural Gas to customers throughout Manitoba – the fourth largest utility in Canada and the largest exporter of electricity to the U.S. Manitoba Hydro has many past and recent initiatives advancing the use of biomass as a

		Manitoba , R3C 0G8	fuels, including organizing and leading a trade mission to Sweden and Denmark, for evaluation purposes. Recently, Manitoba Hydro started the Power Smart Bioenergy Optimization Program, providing financial incentives to customers interested in converting their raw forms of biomass-typically biomass already available at the site-to produce energy.
Manitoba Conservation and Water Stewardship (CWS)	John Dojack, Director	<a href="mailto:John.dojack@gov.mb.ca">John.dojack@gov.mb.ca</a> ; 204-945-7998; Forestry Branch, Manitoba Conservation 200 Saulteaux Crescent, Winnipeg MB R3J 3W3	John Dojack is the Director of the Forestry Branch of Manitoba WS. This branch is responsible for ensuring sustainable resource management. The Forestry Branch manages provincial Crown forests by setting forest harvest levels, monitoring forest management activities, ensuring forests are regenerated, providing protection from insects and diseases and collecting revenues for use of Crown timber. The Department is a member of the Central Canada SFI Implementation Committee.
CIF/IFC Manitoba Section	Brad Epp, Director	<a href="mailto:Brad.epp@gov.mb.ca">Brad.epp@gov.mb.ca</a> 204 945-7988 Box 5200, The Pas, MB R9A 1S1	Brad Epp is the current director of CIF/IFC's Manitoba Section and is responsible for winning the 'Section of the Year' award during the 2013 CIF AGM. This section delivers events to promote good forestry in the province; including hosting speakers from federal and provincial governments, universities, local forest industry and outside agencies; organizing workshops (including biomass) and field trips. The section maintains a broad provincial membership with representations from government, industry, consultants, academia and related disciplines.
CIF/IFC Lake of the Woods (LoW) Section	Jack Harrison, Director	<a href="mailto:dfmc@shaw.ca">dfmc@shaw.ca</a> 807-223-7216 28A Earl Avenue, Dryden On. P8N 1X5	Jack Harrison sits as the current Director of CIF/IFC's LoW Section, and is based in Dryden Ontario. Lake of the Woods Section is engaged in extension and knowledge exchange events and activities for its members. Jack is also the General Manager of the Dryden Forest Management Company (DFMC), responsible for sustainable forest management activities on the SFI certified land-base. DFMC is a member of the Central Canada SFI Implementation Committee.
University of Toronto (UofT)	Dr. Tat Smith, Professor	<a href="mailto:tat.smith@utoronto.ca">tat.smith@utoronto.ca</a> 416-978-4638 Faculty of Forestry, 33 Wilcocks St. Toronto On M5S 3B3	Dr. Tat Smith will declare himself as recluse from the selection process. Tat is Professor and Dean Emeritus (Forestry) at the University of Toronto. Tat is currently a member of the Ontario Provincial Forest Policy Committee, serves on the Board of the Sustainable Forestry Initiative, is Associate Leader for IEA Bioenergy Task 43, Chair of the Board of the Invasive Species Centre, and is Vice President of the National Executive of the CIF/IFC. Tat received his Ph.D. from the University of Maine, Forestry, 1984. Tat was a Professor and Head of the Department of Forest Science at Texas A&M University from 1999 – 2005.
Manitoba Forestry Association (MFA)	Patricia Pohrebniuk, Executive Director	ppohrebniuk@thinktree.org 204-453-3182 900 Corydon Ave.	Patricia Pohrebniuk is the Executive Director of the MFA. The MFA was created in the 1970's, but dates back to the 1900's, when the concept of natural resource conservation was barely understood. The MFA is a non-profit and focuses on forestry education and outreach across the province, and is a signed supporter of the Central Canada SFI Implementation

		Winnipeg MB. R3M 0Y4	Committee (please see: <a href="http://www.sficentralcanada.org">www.sficentralcanada.org</a> )
SFI Central Canada Implementation Committee/ Resolute	Mike Maxfield, Chairman, Central Canada SFI Implementation Committee	<a href="mailto:Mike.maxfield@resolutefp.com">Mike.maxfield@resolutefp.com</a> 807 475-2626 2001 Neebing Ave Thunder Bay, ON P7E 6S3	Mike is the Certification and Communications Manager for Resolute Forest Products in Thunder Bay. He is currently the Chair of the Central Canada SFI Implementation Committee and a registered professional forester for over 25 years. CCSIC promotes and fosters understanding of SFI and encourages the implementation of sustainable forestry practices to wood suppliers, landowners and the public. The committee was formed in December 2003 with all participants equally represented. The Committee consists of SFI Program Participants, SFI Program Supporters, SIC Supporters and General Members.
Weyerhaeuser	Mike Dietsch Operations Manager	<a href="mailto:Mike.Dietsch@weyerhaeuser.com">Mike.Dietsch@weyerhaeuser.com</a> (807) 548-714 925 West Georgia Street, 5th Floor, Vancouver, BC V6C 3L2	Weyerhaeuser is one of the world's largest private owners of timberlands, which has been around for over a century with the vision of delivering sustainable solutions for the world. Several of the forests managed under Weyerhaeuser are fully SFI certified, and supply biomass feedstock to Pineland Nursery. Mike Dietsch acts as the Operations Manager supervising, training and mentoring staff to ensure Weyerhaeuser meets its goals.
LP Canada Ltd. - Swan Valley Forest Resources Division	Paul LeBlanc, District Forester	<a href="mailto:Paul.LeBlanc@LPCorp.com">Paul.LeBlanc@LPCorp.com</a> 204-734-4102 558 3rd Ave South, PO Box 998 Swan River, MB, R0L 1Z0	Paul LeBlanc is the District Forester with LP Canada Ltd. in Swan Valley Manitoba. He is directly responsible for LP Canada Ltd.,- Swan Valley Forest Resources Division (which has obtained SFI certification) and is the lead person for SFI audits, maintaining the company's Environmental Management System, and representing LP Canada Ltd. on the Central Canada SFI Implementation committee.
Manitoba Model Forest	Dr. Brian Kotak, General Manager	<a href="mailto:miette@rogers.com">miette@rogers.com</a> 204-367-4541 P.O. Box 6500 Pine Falls, MB R0E 1M0	Brian Kotak is an ecologist who has been the General Manager of the MBMF for the past 8 years. Prior to that, he was the Environment Director for Tembec's forest management and mill operations in Manitoba. The MBMF is a partnership of communities, industries, NGOs and governments who develop innovative tools for the sustainable management of forests. The MBMF is also engaged in forest education of students, educators and the general public. The MBMF is currently working with forest product companies and 4 First Nation communities to form joint ventures in forest product mills, including biomass to fuel technologies.
Mountain Forest Section Renewal Company	Jeannette Coote, Silviculture Forester	<a href="mailto:cootej@spl.mb.ca">cootej@spl.mb.ca</a> 1-204-734-3089 x 223 Box 1210, Swan River, MB R0L 1Z0	Jeannette Coote is the silviculture forester for Mountain Forest Section Renewal Company (a sub-company of Spruce Products Ltd. in Swan River, MB). She is also the main contact for SFI certification. Spruce Products sawmill has a biomass burner, and is the supplier of feedstock for the community pellet plant.

## **Project Details**

### ***1. Background:***

Fossil fuels have been the focus of many modern-day production systems and have subsequently become deeply rooted in our daily lives. With the price of oil increasing and growing concerns regarding the implications of non-renewable energy resources to climate change, the search for clean technologies is increasing. Given Canada's abundance of underutilized wood fibre, available harvest residues and under utilized forest resources, bioenergy is being sought out as a solution to growing energy demands. Though biofibre is a carbon friendly, efficient source of energy there remain questions about the overall sustainability of the operation. Such information gaps create roadblocks for policy development, certification standards and implementation, creating a need for general knowledge exchange based on scientifically sound research.

#### **a) Basic Methodology:**

The objective of this project is to determine if a biomass harvest is fundamentally different from a natural disturbance regime or a traditional harvest. This research will compare and contrast the environmental sustainability and economic feasibility related to the acquisition of biomass from three sites. All findings will have the potential to be extrapolated beyond the stand-level to a regional and interprovincial scope for biomass feedstock harvesting from SFI-certified forests in Canada.

- **Site:** This study will take place in Manitoba on Crown Land, currently being investigated for SFI certification. Much of the economic analysis will be done at Pineland, using leading edge bioenergy technologies.
- **Treatments:**
- Eight sites will be selected: four treatments will be done with two replicate sites per treatment.
  - Two – 10 ha harvest blocks with a conventional harvest (de-limbing at the stump, merchantable wood harvested in compliance within Manitoba's Crown Land utilization standards),
  - Two – 10 ha harvest blocks with a biomass harvest (whole tree harvest, including tops, limbs and merchantable wood fibre – utilization standards will be pushed beyond the Crown Land standards),
  - Two – 10 ha control sites (unharvested, natural baseline),
  - Two – 10 ha plots within a recent wildfire will act as a representation of a natural disturbance
    - § To minimize confounding effects, site selection criteria will be consistent in vegetation and soil type, landform, microclimate, stand ages, and condition at time of disturbance
  - 5 intensive measurement plots (1/4 ha in size) will be randomly selected in each harvest block, the control site and the fire site for ecological and economic monitoring purposes.
- **Economic Monitoring:**
  - The economic analysis of the biomass and traditional harvests will be completed on site. Specific operational costs monitored will include: transportation from the harvest site to Pineland, chipping/ grinding, delivery and the boiler at Pineland – processing in-bush vs. processing on site, maintenance of machines, quality assessment of biomass delivered, and an assessment of available economically feasible biomass supply.
- **Ecological Monitoring:**
  - Ecological monitoring will take place pre- and post-harvest for both harvest blocks; post burn in the natural disturbance site; and on-going for the control site as a reference state condition.

- Ecological criteria to be measured: soil nutrients, standing trees, woody debris (coarse and fine), natural regeneration, and above and below ground carbon.
- **Knowledge Exchange:**
  - An extensive set of knowledge exchange and outreach products, projects and services with synthesized material will be developed to inform on all research conducted and will be systematically delivered. These tools include workshops, tech notes, implementation guides, multi-media information portals, presentations, and conferences.
- **Investigation of use for rural communities**
  - Though collaboration with multiple project partners, this project will serve to determine the suitability of incorporating combined heat and power systems to rural, remote and Aboriginal communities.

**b) Intended impact:**

With an objective and accurate depiction of forest biomass, this analysis and knowledge exchange is intended to positively impact a variety of stakeholders and more generally, influence forest research, science management and technology.

- Policy: The project is anticipated to serve as an effective framework to inform governments (nationally and internationally) and policy makers, including those within SFI, on the sustainability and economic criteria and standards associated with forest biomass procurement.
- The forest industry and forest managers: Benefit will be derived from discussion and decisions around the opportunity and costs of biomass removal harvests versus a conventional harvest. The economic analysis will provide immediate deliverables, such as equipment productivity and product recovered. More generally, the results are intended to broaden the implementation and knowledge of sustainable forestry and ensure the long-term productivity, carbon storage and conservation of forest resources. Economic benefits will also be realized; the efficient use of forest resources, including fibre otherwise considered waste streams, will enable for a diversification of products, providing added income.
- Forest Operators: the project will be designed to incorporate qualified forest operators, providing training and education to those working on the ground.
- Academia: on-going measurements and data collection is intended to benefit academia as results may be used for long-term forest productivity research.
- Remote/ Rural/ Aboriginal communities: This project is anticipated to have a significant impact on remote communities in Manitoba and elsewhere. With a readily available supply of biomass in these areas, research will work to provide energy independence and economic growth for these communities.
- Inform sustainable forest management & best management practices: This project is intended to provide a model for the sustainable procurement of forest biomass that facilitates both harvesting and long-term productivity while managing and promoting wildlife habitats and the diversity at the stand-level. A set of criteria and standards will be determined at the stand-level and adapted to the landscape-level.
- Landowners: The products and services made available for knowledge exchange purposes will provide practical information to landowners increasing their knowledge of sustainable forestry and the economic criteria of biomass harvesting from certified forests.
- General public: Through knowledge exchange products and services, the public at large within Canada's provincial and territorial jurisdictions will become informed on the advancements of green technologies, the science behind it, and the social benefits.
- International policy and recognition: this project will be regionally executed, with international implications. The CIF/IFC has assumed responsibility for Canada's involvement in International Energy Agency (IEA) Bioenergy Task 43. Results from this project will inform the

European Union (EU) on Canada's role as a global leader in sustainable forestry and the SFI as an inclusive third-party forest certification system as a means of encouraging excellence.

**2.** This project will inform on the role of the SFI through the promotion of responsible forest management, taking consideration of social, ecological and economic aspects. Specifically, the proposal addresses the conservation categories of: Carbon and Bioenergy, Forest Health, Capacity Building and Wildlife, Fish and Biodiversity.

### **1. Carbon and Bioenergy**

**(a)** Examine how bioenergy markets have impacted utilization and intensity of management on forestlands:

This study will examine the impacts of bioenergy procurement at the stand-level, analyzing various levels of intensity and utilization of a biomass harvest, while subsequently measuring the impacts to a variety of ecological criteria. Results will be pertinent in determining standards and criteria for the sustainable procurement of biomass on forestlands; regardless of market pressures – which are projected to increase – standards will ensure utilization does not compromise long-term sustainability. The development of standards and criteria at a stand-level will be modeled to create measures for the long-term productive capacity of forests and the conservation of biological diversity at the landscape level.

**(b)** Develop tools to help landowners better understand the impacts of forest management on carbon in the atmosphere:

The knowledge exchange portion of this project will provide landowners, forest managers, remote communities and the public at large with information, tools and resources to expand their practice and knowledge of sustainable forestry. Interested users will be provided with a practical guide, tech notes, workshops and information through multi-media platforms to optimize best management practices, conservation of biological diversity, management of harvest residues, and more generally, the carbon benefits of shifting towards biofibre for heat and energy. With a portion of the ecological monitoring focused on above and below carbon stocks, these tools and resources will include a strong focus on the direct impacts of forest management on above and below ground carbon stocks.

### **2. Forest Health:**

**(a)** Provide guidance, technical assistance, or the business case to forest landowners about working forest conservation easements:

Through the products and services made available upon completion of the ecological analysis, landowners, forest managers and remote communities will be provided with guidance and technical assistance for forestland conservation in perpetuity. Grounded in scientific research, the results from the project will provide direction for the long-term growth of forests harvesting for biofibre, the improvement or maintenance of wildlife habitat (ie. standards for the coarse and fine woody debris), regeneration, and carbon sequestration. From a business case perspective – with a full economic analysis integrated in the ready-made products for knowledge exchange, end users will also gain confidence in the economic feasibility of implementing carbon-friendly technologies.

**(b)** Examine the intersection between healthy, managed forests and public benefits, including clean air and water, wildlife habitat, and other ecosystem function:

The sustainable management of forestlands for the production of energy accrues concurrent benefits, both environmentally and socially speaking. This project will look to measure a variety of ecological factors, including carbon stocks (above and below ground), downed woody debris and soil nutrient levels – based on the results, standards and criteria will be developed to protect and enhance these ecological factors that contribute to ecosystem function and public benefits, including clean air, water and wildlife. Promoting the use of sustainably managed forest fibre for Canada's bioeconomy, in replace of non-renewable fossil fuels, will further exacerbate the public benefit of clean air and hospitable environmental conditions given utilizing bioenergy can work to sequester carbon and mitigate climate change. Indirect public benefits arise from job creation, and the advancement of an efficient and affordable fuel type, particularly in forest dependent and remote communities.

c) Examine the role of fire, pest, disease and climate change:

Exploring the ecological and economic potential of bioenergy at the stand-level provides an opportunity to extend and adapt project results to a larger scale. With the increased onset of fire, pests and disease as a function of climate change, this research will enable for best management practices to be applied to large-scale disturbances and make use of this wood-fibre supply. Moreover, from a management perspective – sustainably employing a biomass harvest minimizes the risk of these events. Removing excess ground fuels to be used for energy purposes, for example, reduces the risk of widespread forest fire.

### **3. Capacity Building:**

(a) Enhance capacity of Aboriginal/Tribal community to assess and manage natural and cultural resources:

A significant portion of this project – in collaboration with key project partners – will focus on the feasibility of implementing bioenergy in remote communities. One of the most critical issues facing rural, remote, and Aboriginal communities is energy security. Due to their location, diesel and propane are the most readily available fuels – however, they come at a premium, and are some of the most carbon intensive. Implementing bioenergy technologies would ostensibly combat these challenges and enable for the opportunity to manage their own resources, while providing a sustainable, cost effective and readily available energy alternative.

(b) Develop and implement forest landowner outreach programs surrounding forest conservation practices:

Much of this project will be comprised of a variety of knowledge exchange and outreach programs, packages, workshops and tech notes catered to landowners, forest managers, and rural communities. These tools will provide information on the practical implementation of bioenergy, including the sustainable management of forestlands, and promote forest conservation. More specifically, details and criteria regarding habitat features, reforestation, biodiversity, endangered species, and management of harvest residues will all be outlined, so as to promote the long-term productivity of forested lands.

### **4. Wildlife Fish and Biodiversity:**

(a) Protect, promote, illustrate, improve or restore key biodiversity, aquatic species, or wildlife habitat practices to meet SFI Standard requirements. Through science-based research, standards and criteria will be developed for future bioenergy procurement initiatives. With the treatment blocks lending themselves nicely to more in-depth multi-trophic biodiversity indicator monitoring, a strong focus will be on the protection and improvement of ecological features; these standards and criteria will work to ensure the longevity of working forests, meeting SFI standard requirements and promoting biodiversity. While research will be conducted at the stand-level, criteria and standards for the maintenance and protection of biodiversity and wildlife habitats are adaptable to a larger scale, and recommendations will subsequently be made for the landscape level.

3. Project partners will play a significant role in the synthesis, summary packaging and delivery of information for knowledge exchange to promote the outcomes of the project, and SFI's involvement. An extensive set of projects, products and services will be on-going throughout the research, and will include:

1) The development of tech notes and a practical guide for sustainable biomass-bioenergy implementation. This reader-friendly document will include recommendations for implementation and optimizing sustainability and economics for land-owners, forest managers, businesses and remote communities.

2) Findings will be published and prominently featured in the CIF/IFC's scientific journal, *The Forestry Chronicle*;

3) Information, both practical and educational, will be made accessible through social-and multi-media outlets, including website presence;

4) A series of workshops will be delivered across central Canada to present findings and enhance information exchange;

5) A national e-lecture will feature forest product and biomass recovery, economics, sustainability indicators, and biomass product characteristics.

6) Presentations will be delivered by the project lead and project partners within relevant public venues, such as the SFI Annual Conference, or any other venues identified by SFI Inc.

2.

<b>Project Goals</b>	<b>Actions</b>	<b>Tangible Outcomes How it relates to SFI standard, landowners, etc.</b>	<b>Measure Success</b>	<b>Grant Funds</b>	<b>In-Kind or Matching Funds</b>
1. Investigate ecological implications of a biomass harvest compared to natural disturbances and traditional harvests	Set up a field experiment and demonstration area to collect data for sustainability indicators (soil nutrients, standing trees, down wood, regeneration, above and below ground carbon)	<ul style="list-style-type: none"> <li>- Quantitative knowledge of ecological implications of a biomass harvest;</li> <li>- Creation of a legacy biomass harvest demonstration area;</li> <li>- Collection of intensive information and analysis at the stand-level</li> </ul>	<ul style="list-style-type: none"> <li>- Improved understanding of ecological indicators sustainably harvested biofibre reflected in policy and standards and feed-in tariffs.</li> <li>- Increased level harvested biomass on SFI certified forests</li> </ul>	\$45,000	\$55,000
2. Provide an all-inclusive economic feasibility study of bioenergy implementation and its conversion to energy	Conduct analysis of economic productivity parameters including: cost and productivity per productive machine hour, transportation costs from harvest site to Pineland, costs of chipping/grinding, delivery and the boiler system at Pineland, maintenance of machines, and quality assessment of biomass.	<ul style="list-style-type: none"> <li>- Immediate deliverables to forest managers and landowners;</li> <li>- Holistic understanding of biomass harvesting;</li> <li>- Determine product recovery, productivity, and transportation costs at a regional scale to identify available supply of affordable biofibre for locations with similar forest conditions.</li> <li>- Transportation thresholds</li> </ul>	<ul style="list-style-type: none"> <li>- Informative measures of microeconomics relating to both present and future sustainable production of bioenergy, inclusive of all economic factors.</li> <li>- Increased acceptance of biomass harvesting by forest industry and contractor base.</li> </ul>	\$15,000	\$20,000
3. Provide accurate, unbiased, and practical science-based information through knowledge exchange	- Highlight findings in The Forestry Chronicle; inform public through various media platforms; develop practical guide for bioenergy implementation; host five workshops to present findings; host national	<ul style="list-style-type: none"> <li>- Inform all interested stakeholders, landowners and parties on the role of SFI and the standards and measures in place for the sustainable procurement of forest fibre at the stand-level and applicable to other sites, i.e.) landscape-level</li> </ul>	<ul style="list-style-type: none"> <li>- Acceptance of wood energy reflected in general public's perception and provincial, national and international policies</li> <li>- Policy and guidelines (provincial and SFI) developed for biomass harvesting based on</li> </ul>	\$10,000	\$20,000

	electronic lecture; present findings at the annual SFI conference	- Promote sustainable forest management	findings - Increased bioenergy projects by private landowners and businesses		
4. Build capacity in the bioenergy sector	- With Manitoba Hydro, investigate available supply of biomass for remote communities - Involve local contractors/receptors in implementation of the study	- Incorporate combined heat and power systems into remote communities - Improve the practice of sustainable forestry through training and education - Develop forest landowner outreach programs	- Remote communities adopting forest derived biomass energy, and the creation of jobs - Reduced dependency on diesel and propane in remote communities	\$5,000	\$20,000
5. Position Canada as a global leader sustainable biofibre procurement	Provide science-based information on sustainable forestry policy and practice in Canada; inform EU, and IEA policy development	Incorporation of sustainability frameworks into international policies, including the recently enacted EU Renewable Energy Directives	Global recognition of Canada's capacity to contribute to a green economy through sustainable forestry	\$10,000	\$15,000

### **Project Timeline**

<b><i>Date:</i></b>	<b><i>Task:</i></b>
May 1, 2014	Project Team meets – Project objectives, deliverables and roles to be discussed and determined
May 15, 2014	Sites Selected – a team will set out to find appropriate forest blocks to conduct a conventional harvest and a biomass harvest, a control site, and a fire disturbance site for study.
June 1, 2014	Plot Layout: harvest blocks, control sites and intensive measurement plots within each site will be established; a fire site will be determined.
June 15, 2014	Pre-harvest data collection– all sustainability indicators outlined in project details to be measured and collected
Aug. 1, 2014	Harvest – established harvest blocks to be harvested as per guidelines; Economic analysis – cost per productive hour of work, transportation costs from harvest site to Pineland, and wood fibre to be tracked through the chipper (or grinder) and burner for economic considerations
October 1, 2015	Data analysis – data collected during pre-harvest measurements to be analyzed in preparations for extension projects - Extension projects: updates in <i>The Forestry Chronicle</i> , eLectures, and presence on the CIF-IFC website and all multi-media sites.
May 1, 2015	Post harvest and post fire data collection and measurements – all sustainability indicators outlined in the project details will be measured
July 15, 2015	Data analysis – data collected during post-harvest measurements to be analyzed and prepared for ongoing extension projects; Economic modeling – all associated costs (harvest, transportation, energy conversion) to be modeled for an economic analysis

September 1, 2015	Continued extension projects – all proposed extension projects to be delivered with an accurate depiction of sustainability and economic factors relating to the acquisition of biomass from certified forests, for the production of bioenergy.
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**Project Budget:**

<b>Expenditure</b>	<b>SFI Grant Funds</b>	<b>Total Matching Funds</b>	<b>Source of Matching Funds*</b>	<b>In-Kind Contributions*</b>	<b>Source of In-kind Contributions</b>	<b>Total per expenditure category</b>
<b>Staff Salary and Benefits</b> (please list budget amount individually per staff person)	- \$30,000: 3 Undergrad research assistants - \$15,000: Supervisor	- \$30,000: Project coordinator - \$5000: Administrative support	CIF/IFC			\$80,000
<b>Operating Costs</b>						
Field work and data collection	\$20,000			\$45,000	\$10,000 – MB CWS; \$5,000 – Weyerhaeuser; \$5,000 – Resolute; \$5,000 - LP Canada Ltd.; \$5,000 Mountain Forest Section Renewal Company; \$5000 UofW; \$5000 Manitoba Hydro; \$5,000 Manitoba Model Forest	\$65,000
Data analysis and information synthesis	\$5,000			\$20,000	\$5,000 – MFA; \$5,000 – Pineland; \$5,000 – UofW; \$5,000 - UofM	\$25,000
Report writing and production	\$5,000			\$20,000	\$5,000 – UofM; \$5,000 – UofW; \$5,000 – Pineland; \$5,000 UofT	\$25,000
Extension and knowledge exchange	\$10,000			\$10,000	\$10,000 – CIF Sections;	\$20,000
<b>Total</b>	<b>\$85,000</b>	<b>\$35,000</b>		<b>\$95,000</b>		<b>\$215,000</b>

**SFI Inc. Conservation & Community Partnerships Grant Program Request for Proposals  
Directions and Grant Application for 2014 Grant Projects**

Organization Information

Lead Organization Name and Address	Clarkson University, 8 Clarkson Ave., Potsdam, NY 13699
Name, phone and email for Project Director	Tom A. Langen, (315) 268-7933, tlangen@clarkson.edu
Lead Organizational Mission Statement (25 words or less)	To educate talented and motivated men and women to become successful professionals through quality pre-collegiate, undergraduate, graduate, and professional continuing education programs.
Lead Organization Annual Operating Budget	\$111,000,000
Two references (Name, Organization, email and phone) who can speak to the relevance and potential impact of the Project (these should not be the same as your Project partners):	Michale Glennon, Wildlife Conservation Society mglennon@wcs.org, (518) 891-8872  Cedric Alexander, Vermont Department of Fish and Wildlife, cedric.alexander@state.vt.us, (802) 751-0100

Project Overview

Project Title	Total Length of time for completion of project (in months, from commencement to final reporting)	Amount Requested from SFI	Total Project Budget (including matching funds and in-kind contributions) *	Brief Project Summary (50 words or less)	What element(s) of the SFI 2010-2014 Program are addressed by your Project? (Please cite the Standard Component(s))
Identifying best management practices for improving boreal bird species diversity in managed forests of the northeast.	3 years	\$54,135	\$147,797	This project focuses on identifying best management practices for boreal birds by incorporating results of evaluations of boreal bird diversity and abundance in multiple sites managed to varying degrees and varying time since management. Best management practices will also incorporate stakeholder input and meet SFI standards.	Objective 4: Conservation of Biological Diversity including Forests with Exceptional Conservation Value; Objective 8: Landowner Outreach; Objective 10: Support advances in sustainable forest management through forestry research, science and technology (develop BMPs); Objective 15: Forestry Research, Science, and Technology; Objective 16: Training and Education; and Objective 20: Management Review and Continual Improvement.

Project Partners

Confirmed Project Partners (list organization name only)	Primary Contact Name & Title	Complete Contact Information (Email, Phone Number, Mailing Address)	Brief Summary of Individual's and Organizations Qualifications and Experience (150 words or less per partner)
New York State Department of Environmental Conservation	Angelena M. Ross Biologist 1	<a href="mailto:amross@gw.dec.state.ny.us">amross@gw.dec.state.ny.us</a> , 315-265-3090 x26137 6739 US Highway 11, Potsdam, NY 13676	Angelena has extensive experience surveying for spruce grouse and boreal songbirds. She also has experience working with foresters and private landowners to experimentally manage habitat for boreal birds. In addition, the New York State Department of Environmental Conservation is the agency most responsible for managing for and conserving species of conservation need.
State University of New York College at Potsdam	Glenn Johnson, Professor of Biology	<a href="mailto:johnsong@potdams.edu">johnsong@potdams.edu</a> , 315-267-2710, 44 Pierrepont Ave., Potsdam, NY 13676	Glenn has been working on spruce grouse conservation projects since 2000. He has co-authored the spruce grouse recovery plan.

Project Details

**Introductory Narrative: Intended impact**

The boreal forest supports a high diversity of bird species, ranging from habitat generalists to specialists. In the northeast, boreal forest species are at their southern range limit, occurring in disjunct populations that conform to the isolated nature of boreal forest patches in the region. It is in these southern populations, incompatible forest management practices can cause significant threats to populations that rely on these limited, small habitat patches. Conversely, boreal bird populations at their southern peripheries can benefit the most from appropriate habitat management, using new areas as quality habitat becomes available. Information on forest management techniques that meet both forestry objectives and maintain boreal species' habitat integrity would have applicability to the northeast region and could be applied across the entirety of the eastern boreal region to meet both forestry and habitat objectives.

The spruce grouse is a boreal habitat specialist of mid-successional boreal forests and may be considered an umbrella species for other boreal forest birds. Once relatively common in the northeast, the spruce grouse is now protected or classified as a Species of Greatest Conservation Need (SGCN) in Ontario, Quebec, ME, NH, VT (Endangered), and NY (Endangered). In addition, boreal songbirds such as the American three-toed woodpecker, bay-breasted warbler, Cape May warbler, olive-sided flycatcher, rusty blackbird, and Tennessee warbler are listed as SGCN. Other boreal forest birds such as the black-backed woodpecker, gray jay, Lincoln's sparrow, and the boreal chickadee are also important components and indicators of boreal habitat. Recent evidence suggests that the compliment of boreal songbird species is declining in NY (Glennon 2010). Incompatible forestry practices that lead to the maturation of remaining isolated boreal forest patches and inadequate dispersal of individuals between patches have been implicated as factors leading to spruce grouse declines (Ross and Johnson 2008). Moreover, incompatible forestry practices and remaining habitat patch configuration may also be the cause of songbird declines (NYS CWCS). We intend to examine the influence of various forest management techniques and time since harvest to develop Best Management Practices (BMPs) that can be used to meet sustainable forestry objectives while optimally managing habitat for boreal birds. Such BMPs would have greater applicability to the eastern boreal forests and would allow for maximization of both boreal bird conservation and sustainable forestry practices. Specifically, this proposal meets the following SFI Standards: to manage forests in ways that protect and promote biological diversity, by developing and promote BMPs and outreach material for the boreal forests that maximize bird biodiversity (Objective 4); to manage

lands of special significance, such as boreal forests, in a manner that protects their integrity and takes into account their unique qualities (Objective 6); supports advances in sustainable forest management through forestry research, science and technology by development of BMPs and outreach materials through scientific research (Objective 10); and to continually improve forest management by identifying BMPs that can be applied to the greater northeastern region and to monitor, measure and report performance in achieving sustainable forestry (Objective 14). Adherence to such sound standards broadens the practice of responsible forestry and serves to meet wildlife conservation goals of improving and sustaining biodiversity.

### **Project methodology:**

We propose to survey a series of managed ( $n = 30$ ) and unmanaged ( $n = 2$ ) boreal forests in New York for boreal bird abundance and diversity. Managed forest patches will represent a gradient of tree clearing and time since management to allow us to identify optimal management strategies based on resulting boreal bird diversity and abundances.

Survey methodologies differ for spruce grouse and for boreal songbirds and are described here. Spruce grouse surveys will be conducted by using playback recordings of aggressively calling females from 15 April-31 May to elicit responses by resident males. Females will be surveyed with chick calls from 15 June-1 August. Standard survey methodology of three observers walking transects through boreal habitat broadcasting playback recordings would be used (Ross and Johnson 2008). Because spruce grouse populations in NY are endangered and the species is rare, we also propose to evaluate characteristics of habitat cover and composition of previously managed sites using methods established by Bouta (1991) and compare these stand characteristics to those of known high quality spruce grouse habitat (Ross and Johnson 2008). This comparison will allow us to determine which type of prior management has been most effective at creating quality spruce grouse habitat.

Boreal songbird surveys would be conducted by point counts spaced 250m apart along transects through boreal habitat from 25 May-15 July. Point counts are 10m-long listening periods in which all birds seen, calling or singing at each point are recorded. At least 5 point counts will be conducted for each site. Point counts will take place during the singing hours of boreal birds (from 5:00-9:00am). At least two complete surveys will be conducted each year, for 3 years. Numbers of each species of boreal songbirds heard or seen within and outside of 50m will be used to estimate species' abundances. Survey data from spruce grouse and boreal songbirds will be evaluated using an occupancy modeling framework that allows for an accurate estimation of occupancy while simultaneously accounting for imperfect detection (MacKenzie et al. 2006). Habitat data for boreal songbirds will also be collected to estimate effects of these covariates on species' occupancy and detectability, and will improve measures of habitat occupancy. We will calculate indices of species abundances and diversity to facilitate comparisons between site types.

### *Site selection:*

We propose to compare historical and new aerial photographs to locate at least 30 sites to target for surveys in NY. In addition, we propose to discuss prior management with forest owners in NY to determine time since harvesting and methods used at specific sites targeted for evaluation. The New York State Department of Environmental Conservation (NYSDEC) has existing relationships with many landowners and forestry companies that have conducted management in the boreal that can be used to begin discussions. In addition, there are many easements in New York with prior management that may be evaluated. A few sites have already been selected and are discussed here.

In 2006, a boreal site was managed by creating a 4-ha clearcut, and multiple 4-ha stand thinnings for the purpose of promoting spruce grouse populations. In 2008, NYSDEC staff worked with a private landowner to experimentally manage boreal habitat by thinning tree stands in 9, 1-ha blocks to varying densities to determine the potential effects on boreal birds. An additional boreal site was managed (multiple 1-ha cuts) in the mid-1990s with the intent of improving spruce grouse habitat. In addition, many other boreal sites exist in NY that have been managed for reasons other than enhancing boreal bird habitat in the recent and more distant past that could be evaluated. The NYSDEC currently has working relationships with many of the boreal forest landowners in NY, which would facilitate site access and evaluation. Management prescriptions that result in

the greatest diversity and abundance of boreal birds will be used to develop BMPs for boreal forests. We will initially target dissemination of draft BMPs to SFI staff and NYSDEC foresters and get feedback. In addition to using strictly species diversity and abundance analyses and habitat analyses to draft BMPs, we will hold 2 meetings with various stakeholders in the northeast (SFI staff, private landowners, foresters, timber companies, nonprofit organizations, and conservation agencies from NY, NH, VT, and ME, hereafter referred to as “stakeholders”). The first meeting will be to share results of analyses and disseminate draft BMPs and solicit additional information to be included in the BMPs. Tapping into information that is already present in the conservation and forestry community will be vital to the efficacy of these BMPs and will also serve to promote regional buy-in. The second meeting will be held with stakeholders to disseminate BMPs and solicit additional items to include once BMPs are semi-finalized. In addition to the development of BMPs, we will also create outreach material such as a summary boreal forest BMP brochure and web page materials that will be distributed at these meetings that can be made available on SFI and state agency websites for broad availability to forest managers in the region. We will also disseminate BMPs and outreach materials to additional state conservation agencies at the Northeast Association of Fish and Wildlife Agencies regular meetings to promote the BMPs broad distribution and use.

#### **Informing the role of SFI in Wildlife, Fish and Biodiversity Category:**

Our project will inform the role of SFI in the “Wildlife, Fish and Biodiversity” category by improving wildlife habitat practices through the development of scientifically tested BMPs that meet SFI Standard requirements. In addition, our project will have region-wide applicability to the northeastern United States and southeastern Canada. Moreover, our project will also establish the role of one or more successional boreal habitats as they may benefit boreal bird biodiversity in managed forests. This project will also help develop forest landowner outreach programs surrounding forest conservation practices and ultimately lead to improved forest health and biodiversity by providing guidance and technical assistance to forest landowners.

#### **Activities to Promote Project Outcomes and SFI Involvement:**

We plan to discuss with SFI staff the incorporation and integration of project results and SFI Standards into the BMPs. We also plan to hold at least two meetings centrally located in the northeast region with stakeholders to share project results and discuss how to integrate management for maximum boreal species diversity, SFI standards, land management goals, and their expert knowledge of forest management into effective BMPs. Specifically, we will begin with dissemination of draft BMPs to SFI staff and NYSDEC forestry staff to get their feedback. The first meeting will be to share results of analyses and disseminate draft BMPs and solicit additional information to be included in the BMPs and other venues to share BMPs. Once information has been incorporated, the second meeting will be held with stakeholders to disseminate finalized BMPs. In addition to the development of BMPs, we will also create outreach material such as a summary boreal forest BMP brochure and information for a web page that will be distributed at these meetings that can be made available on state agency websites for broad availability to forest managers in the region. We will also disseminate BMPs and outreach materials to additional state conservation agencies at the Northeast Association of Fish and Wildlife Agencies regular meetings to promote the BMPs broad distribution and use. We will also plan to attend the SFI annual conference to discuss project progress and results.

This SFI grant proposal will provide partial funding for a Ph.D. graduate tuition assistantship to A. Ross. Field work will also be supplemented with this grant to provide for a field technician. Most of the field work and data analyses will be funded by the NYSDEC. Time will also be provided as match by Tom Langen (PI) and Glenn Johnson (project partner) for project guidance.

**Literature Cited:**

Bouta, R.P. 1991. Population status, historical decline and habitat relationships of spruce grouse in the Adirondacks of New York. M.S. Thesis. SUNY College of Environmental Science and Forestry, Syracuse, New York. 117pp.

Glennon, M. 2010. Distribution and Abundance of Boreal Birds in the Adirondack Park: Final Report to the New York State Department of Environmental Conservation.32pp.

MacKenzie, D.I., J.D. Nichols, J.A. Royle, K.H. Pollock, L.L. Bailey, and J.E. Hines. 2006. Occupancy Estimation and Modeling: Inferring Patterns and Dynamics of Species Occurrence. Elsevier, Burlington, MA.

NYS CWCS: New York State Comprehensive Wildlife Conservation Strategy. 2005. New York State Department of Environmental Conservation. On line, accessed 2/1/2014 <<http://www.dec.ny.gov/animals/30483.html>>

Ross, A.M., and G. Johnson. 2008. Spruce grouse in lowland boreal forest of New York State: Distribution, movements, and habitat. Final Report AMO5122, Grant T-2-1, New York State Department of Environmental Conservation. 144pp.

Table 1. Project goals, actions, tangible outcomes, how success will be measured, and support necessary to complete the project.

Project Goals	Actions	Tangible Outcomes	Measure Success	Grant Funds	In-Kind or Matching Funds
Identify best management practices to achieve maximum boreal bird diversity and abundance in northeastern forests.	Survey spruce grouse and boreal songbirds in a variety of boreal sites (i.e., sites with varying managements and time since management) to identify the areas with the greatest boreal bird diversity and abundance to frame draft Best Management Practices.  Hold two meetings with various stakeholders (see text) to evaluate best management practices and develop final BMPs. Develop supporting outreach materials (BMP summary brochure and web page) to promote broad distribution and implementation of Best	Development of scientifically sound Best Management Practices that can be implemented broadly throughout the eastern boreal forests.	Differences in boreal species diversity and abundances in site managed to carrying degrees and time since management will allow for measurements of success. We will include sites with no history of management as control sites to mediate effects of natural bird population fluctuations. We will also evaluate diversity of target boreal species and if measures do not differ, include up to 10 additional survey areas during the following years.	\$43,384 (tuition)  \$7,751 (tech. time & FB)	\$32,392 (T. Langen time & FB)  \$26,698 (G. Johnson Time & FB)  \$34,571 (unrecovered indirect costs)

	management Practices				
Promote broad distribution of BMPs and outreach material to stakeholders such as conservation agencies (located in NY, VT, NH, and ME), nonprofits, private landowners, foresters and timber companies.	Invite participants to both meetings for BMP draft development and finalization. Attend the Association of Fish and Wildlife Agency regular meetings to distribute BMPs and outreach materials. Attend the SFI annual conference to disseminate project information and outcomes.	BMPs and supporting information provided to various stakeholders.	Effective boreal forest bird BMPs that meet SFI standards.  Conservation agencies recommend BMPs for use on boreal forests.	\$3,000 for travel to meetings.	

Project Timeline

**3 April – 14 April 2014-2016:** Select sites for management evaluation (at least 30 sites representing a gradient of habitat management [varying degrees of stand thinning and varying time since management]). Include at least 2 sites that have no previous history of management as controls. This work will begin prior to 3 April to secure landowner permission.

**15 April – 31 May 2014-2016:** Complete at least one set of spruce grouse surveys for adult males at all sites using playback recordings.

**25 May – 15 July 2014-2016:** Complete at least 5 boreal bird point counts in all sites (at least two sets of point counts per season). Enter spruce grouse survey data.

**15 June – 1 August 2014-2016:** Complete at least one set of spruce grouse surveys for adult females at all sites using playback recordings.

**1 August – 1 September 2014-2016:** Enter survey data and collect habitat data.

**1 September – 1 December 2014-2015:** Enter habitat data and write progress report.

**1 January-1 March 2016:** Hold first meeting with private landowners, SFI and other stakeholders (see text) to distribute results of first 2 years of data collection and draft best management practices (BMPs). Begin development of outreach materials for a broad audience.

**15 March 2016-15 March 2017:** Incorporate information from first meeting into development of BMPs. Add additional survey information into draft BMPs. Finalize best management practices and distribute to stakeholders. Finalize outreach materials to reflect changes in BMPs.

**15 March – 1 April 2017:** Write final report and distribute BMPs and outreach materials (brochure and web pages) to stakeholders. Add finalized BMPs to NYSDEC web site.

Project Budget:

Identifying best management practices for improving boreal bird species diversity in managed forests of the northeast.

<b>Expenditure</b>	<b>SFI Grant Funds</b>	<b>Total Matching Funds</b>	<b>Source of Matching Funds*</b>	<b>In-Kind Contributions*</b>	<b>Source of In-kind Contr.</b>	<b>Total per expenditure category</b>
<b>Staff Salary and Benefits</b> (please list budget amount individually per staff person)	\$7,751 One field technician (Clarkson student) for 6 weeks during summer	\$32,392 (T. Langen time & FB)  \$26,698 (G. Johnson Time & FB)	Clarkson University  SUNY Potsdam			\$68,266
<b>Operating Costs</b>						
Tuition (3 semesters)	2014: \$33,360 2015: \$10,024					\$43,384
Research Activities						
Meetings						
Travel	\$3,000					\$3,000
Education & Outreach						
Communications						
Indirect Costs		\$34,571	Clarkson University			\$34,571
<b>Total</b>	<b>\$54,135</b>	<b>\$93,661</b>				<b>\$147,796</b>

\*list sources and amounts of any matching funds or in-kind contributions for each project partner

Matching Funds are comprised of the following:

1. 1 month of academic salary for the PI, Dr. T. Langen and the associated fringe benefits from Clarkson University (totaling \$32,392).
2. 1 month of summer salary for the project partner, Dr. G. Johnson and the associated fringe benefits from SUNY Potsdam (totaling \$26,698).
3. The unrecovered indirect costs based on Clarkson University's federally negotiated indirect cost rate agreement based on 49.5% of MTDC (totaling \$34,571).

## SFI Inc. Conservation & Community Partnerships Grant Program Request for Proposals

### Organization Information

Lead Organization Name and Address	National Wild Turkey Federation (NWTf) P.O. Box 530 Edgefield, SC 29824
Name, phone and email for Project Director	Rick Horton, 218-326-8800, <a href="mailto:rhorton@nwtf.net">rhorton@nwtf.net</a>
Lead Organizational Mission Statement (25 words or less)	Dedicated to the Conservation of the Wild Turkey and Preservation of Our Hunting Heritage
Lead Organization Annual Operating Budget	\$65.1M
Two references (Name, Organization, email and phone) who can speak to the relevance and potential impact of the Project (these should not be the same as your Project partners):	Mark Rickenbach, Associate Professor, University of Wisconsin-Madison, <a href="mailto:mgrickenbach@wisc.edu">mgrickenbach@wisc.edu</a> , 608-262-0134  Randy Mell, Natural Resource Educator, University of Wisconsin Extension, <a href="mailto:randy.mell@ces.uwex.edu">randy.mell@ces.uwex.edu</a> , 608-782-4950

### Project Overview

Project Title	Total Length of time for completion of project	Amount Requested from SFI	Total Project Budget	Brief Project Summary (50 words or less)	What element(s) of the SFI 2010-2014 Program are addressed by your Project?
Driftless Forest Network Landowner Outreach: Testing and implementing landowner outreach to address declining early successional oak habitat	24 months	\$60,000	\$118,485	We will develop new strategies, drawing from principles of social marketing, to inform and encourage landowners to carry out sustainable practices that favor regeneration of oak forests, a declining habitat across the Eastern U.S.	Many indicators in Objectives 1-4, 8-9, & 15-17.  For example, Indicators: 2.1.3, 2.1.5, 2.1.6, 2.3.5, 2.4.2, 3.1.1, 4.1.1, 4.1.4, 4.1.5, 4.1.8, 8.1.1, 8.1.3, 9.1.1, 15.1.1, 15.2.1, 16.1.3-5, 16.2.1, 17.1.2-5, & 17.2.1

### Project Partners

Confirmed Project Partners	Primary Contact Name & Title	Complete Contact Information	Brief Summary of Individual's and Organizations Qualifications and Experience (150 words or less per partner)
National Wild Turkey Federation	Rick Horton Midwest Conservation Field Supervisor	<a href="mailto:rhorton@nwtf.net">rhorton@nwtf.net</a> , 218-326-8800, 37305 Deer Lake Way, Grand Rapids, MN 55744	The National Wild Turkey Federation (NWTf), headquartered in Edgefield, S.C., is a nonprofit organization dedicated to the conservation of the wild turkey and the preservation of our hunting heritage. The NWTf is a leader in upland wildlife conservation, having conserved over 17

			<p>million acres to benefit wild turkeys and hundreds of other species of upland wildlife. The NWTF has nearly 250,000 dedicated members in the US and Canada.</p> <p>Rick Horton holds a B.S. and an M.S. in Wildlife Ecology from the University of Wisconsin-Madison. He has been involved in forest wildlife management in the upper Midwest for over 15 years, serving as the MN Ruffed Grouse Society Regional Biologist and MN DNR Forest Wildlife Coordinator before joining NWTF. Rick has extensive experience implementing and managing large grants and agreements for habitat improvement. The NWTF has experienced accounting staff in place to ensure fiscal responsibility and timely reports on the project.</p>
Aldo Leopold Foundation	Steve Swenson	<a href="mailto:steve@aldoleopold.org">steve@aldoleopold.org</a> , 608-355-0279, PO Box 77, Baraboo, WI 53913	<p>The Aldo Leopold Foundation (ALF), Baraboo, WI, fosters the land ethic through the legacy of Aldo Leopold by advancing conservation leadership and action. ALF is a principal in leading and implementing projects of the Driftless Forest Network's My Wisconsin Woods. ALF in partnership with American Forest Foundation and US Forest Service through the National Woodland Owner Impact Center promotes to other States tested and successful methodologies of place-based projects like My Wisconsin Woods.</p> <p>Steve Swenson, ecologist for the Aldo Leopold Foundation, works through local, regional and national partnerships to improve conservation's community of practice. Steve authored a series of regionalized landowner handbooks, <i>My Healthy Woods</i>, covering Southwest Wisconsin, Southeast Minnesota, and Southern Arkansas reaching over 30,000 landowners owning 6 million acres of land. Steve provides staff capacity and facilitation for the Driftless Forest Network. Steve holds a Master's degree (1999) in plant ecology from The Ohio State University.</p>
American Forest Foundation	Jerry Greenberg Vice President, Conservation	<a href="mailto:JGreenberg@forestfoundation.org">JGreenberg@forestfoundation.org</a> 608 231 6000 (o) 608 770 6761 (c) 2711 Mason Street Madison, WI 53705	The American Forest Foundation (AFF) works with partners all across America to support small woodland owners to help them realize their dreams and goals for their land while protecting clean drinking water, wildlife habitat and other essential conservation values. AFF is home to the American Tree Farm System, the largest

			<p>network of woodland owners in America.</p> <p>As vice president for conservation for the AFF, Jerry Greenberg brings nearly 25 years of experience working for the full spectrum of forestry and conservation organizations. He heads up AFF's program to bring new social marketing and micro targeting data analytic tools to identify, reach and engage landowners not actively managing their land. Jerry was a founder of a broad collaborative in Wisconsin that has been developing and testing these new outreach tools to great success.</p>
Wisconsin Department of Natural Resources	Dr. Tricia Knoot, Research Scientist, Sociologist/Economist	<a href="mailto:Tricia.knoot@wisconsin.gov">Tricia.knoot@wisconsin.gov</a> , 608-516-5978, 2801 Progress Road, Wisconsin DNR, Madison, WI 53716	<p>The Wisconsin Department of Natural Resources (DNR) works in partnership to protect and enhance Wisconsin's natural resources. Family forests are critical to the Wisconsin landscape and DNR foresters work with over 9,000 landowners every year, providing personalized, on-site service. The DNR helps to ensure that management of Wisconsin's forests meets strict standards for ecological, social and economic sustainability. Three major land management programs administered by the Wisconsin DNR are verified under third-party forest certification programs, including SFI, encompassing over 6 million forested acres.</p> <p>Tricia Knoot is a Research Social Scientist with the Wildlife and Forestry Section at the Wisconsin DNR. She has been a working group member of the Driftless Forest Network project since 2012. She holds a PhD in Forestry, and M.S. degree in Ecology. She specializes in the use of quantitative and qualitative social science methods to understand the social and economic dimensions of forest management.</p>

Project Details

1. Provide an introductory narrative describing (a) the basic methodology, and (b) the intended impact of your project.

**Context:** In Wisconsin and across the Eastern U.S., oak forests provide critical wildlife habitat and a broad range of ecological and social benefits. Yet forest inventories point to a decline in the acreage of young oak stands, a consequence of decades of limited oak regeneration and recruitment. The widespread lack of oak regeneration has been directly tied to ecological factors, including fire suppression, increased deer herbivory, disease issues, and changing forest management practices on private lands, which in combination tend to favor later successional forest types. The vast majority of oak forests in the Midwest are privately owned, yet many landowners are unengaged, conduct harvests without first consulting with a professional forester, and/or harvest without plans to implement post-harvest regeneration and timber stand improvement practices that are essential

for oak recruitment. Therefore, the future of early successional oak forests depends on greater understanding and adoption of active, sustainable forest management practices by private woodland owners.

The Driftless Area, a critical part of the Upper Mississippi watershed, is a National Wild Turkey Federation designated focal landscape of regional and national significance and has also been identified as priority landscape by the Wisconsin Department of Natural Resources' Statewide Forest Assessment. It was also the site of initial turkey releases in each of the four encompassing states in the early 1970s. This area is a varied landscape of farms, rivers, and forests. Of the 40 percent forested (2.1 million acres), nearly all (96 percent) is privately owned. The dominant forest type, oak-hickory, accounts for an array of economically important forest products while helping protect drinking water and providing for critical wildlife habitat and forage. The NWTF is committed to ensuring high quality wild turkey habitat in the Driftless Area for future generations of hunters and outdoor enthusiasts. Maintaining a strong oak component is essential.

However, managing for oak often requires time-consuming and costly activities that benefit from technical assistance and guidance from a professional forester or qualified logging professional. For example, landowners must often take steps to ensure there is adequate advanced oak regeneration prior to a timber harvest, and then follow-up with additional post-harvest management to help reduce competition from other tree species and shrubs that can hinder oak regeneration and recruitment. Consequently, educational and outreach programs that effectively support landowners and build their capacity to carry out the challenging work of oak regeneration are critical to long-term oak success. Successful programs must provide the "right" messages to the "right" landowners at the "right" time. Specific landowner audiences (e.g., previously unengaged, those who have already completed a harvest, etc.) must be connected with trained forestry and logging professionals and provided the resources (e.g., technical know-how, financial assistance, equipment, etc.) needed to encourage active management across all stages from pre- to post-harvest. Social marketing techniques offer the opportunity to improve the design and targeting of such programs, which can help identify "who" to target (i.e., the specific landowner audiences) and "how" to reach them most effectively (i.e., the messages and resources most applicable to these audiences), ultimately increasing program efficiency and impact.

In 2010, the Driftless Forest Network (DFN) project was initiated in Southwestern Wisconsin (the "Driftless" region) through collaborations from over 15 state and federal agencies and non-profit groups, including the Aldo Leopold Foundation, the American Forest Foundation, the Arington Tree Farm, and the Wisconsin Department of Natural Resources. A core goal of this project is to design and test targeted social marketing approaches with previously unengaged private woodland owners through the use of a comprehensive landowner database and direct mail campaigns that take place in Southwestern (the "Driftless" region) Wisconsin. To date, over 11,000 landowners have been reached through DFN direct mail campaigns, with an average response rate of 20% to an offer of free information and 5% for a free forester visit, out-performing industry standards. Of the respondents, 90% have been previously unengaged and double the number of unengaged landowners have been recruited for cost-share programs, as compared to others areas in Wisconsin. This project proposal builds upon DFN's prior research, which identified landowner's perceived barriers to active forest management, and the DFN tested work to identify specific landowner audiences. The goal now is to design and test promotional materials to encourage landowner adoption of sustainable management, favoring early successional oak habitat.

**Basic methodology:** This project includes four main tasks, which are grounded in social science research methods and social marketing techniques.

Task (1): Define and identify target landowner audiences as recipients of micro-targeted messages and campaigns, including those who have recently completed a timber harvest and whose lands may benefit from post-harvest work. Micro-targeting will require the use of a comprehensive database that includes information on both landowner characteristics and timber harvest occurrences. Although the DFN database does not currently include timber harvest occurrences, this project will procure county timber cutting notices across the Driftless Region of Wisconsin (12 county area), which legally must be filed and are often kept as paper records,

to develop a database for the previous five years to complement existing landowner parcel data collected as part of the larger DFN work.

**Task (2):** Design promotional materials that include specific messages to address and remove landowners' perceived barriers (e.g., financial cost, loss of autonomy, etc.) to working with a professional forester and trained logger and/or to implementing forest conservation practices that favor early successional forest habitat and enhance the benefits (e.g., wildlife value) of these practices at different stages in the process (e.g., oak-appropriate harvesting, pre- and post-harvest practices). It is expected different types or segments of landowners may resonate with particular messages and visual materials, and therefore we anticipate preparing and testing a range of messages that can be used with different audiences.

**Task (3):** Comprehensively test the promotional materials and messages through the use of six focus groups with different segments of private woodland owners. Through the use of the DFN database, and additional data collected in step 1, we will identify and include those landowners with SFI certified lands (i.e., Wisconsin Managed Forest Law program enrollees and American Tree Farm members) and those who are not yet SFI certified into the focus groups, in addition to those landowners who have recently completed a timber harvest (within the last 5 years). Additionally, we will include landowners who are and are not members of particular conservation organizations, to better understand how landowners perceive specific organizations as trusted sources of information (i.e., messengers).

**Task (4):** Identify the messages and materials that best resonate with particular landowner audiences, using findings from the six focus groups. Implement a direct mail and email campaign, using the messages and promotional materials assessed and refined through focus group findings, directed to help remove barriers and enhance benefits of particular practices that promote oak regeneration and restoration. We will use micro-targeting to direct specific messages to assigned audiences. For example, landowners who are not already connected to a professional forester may be provided a list of consulting foresters and loggers who have completed the SIC logger training program. For those landowners found to have recently completed a timber harvest, they may be provided tips for completing post-harvest practices aimed at increasing and protecting existing oak regeneration. The impact and effectiveness of messages and materials used in particular campaigns will be comprehensively evaluated through assessment of landowner responses.

**Intended impact:** Findings, including research data, tested messages and promotions, will help inform other programs across the country that seek to increase landowner adoption of conservation practices that promote early successional forest habitat, which is a critical, yet declining, component of diverse and heterogeneous forested landscapes. Locally, this project will promote early successional oak habitat in the Driftless Region of Wisconsin while effectively communicating the benefits of responsible forestry to private landowners.

2. *Please explain how your project will illustrate or inform the role of SFI in one or more of the five conservation categories listed on the first page.*

The main outcomes of this project directly address several SFI conservation categories:

***Capacity Building:*** The primary focus of this project is to *develop and implement forest landowner outreach programs surrounding forest conservation practices.*

***Wildlife, Fish, and Biodiversity:*** This project will specifically *promote, illustrate, and improve key wildlife habitat in managed forests impacted by natural disturbances such as fire and key biodiversity and wildlife habitat practices to meet SFI Standard requirements; and will demonstrate the role of successional habitats as they may benefit wildlife in managed forests.* Outcomes from this project include the design, development and testing of a social marketing approach encouraging conservation practices by landowners that impact a particular ecological outcome of interest (i.e., early successional oak dominated forests).

***Forest Health:*** This project will *provide guidance and technical assistance and examine the intersection between healthy, managed forests and public benefits, including wildlife habitat.*

3. *What activities will you and your Project partners perform to promote the outcomes of your Project and SFI Involvement in the Project?*

Outcomes from this project will be shared regionally and within the state through direct contact with DFN’s integrated partner collaborative. DFN steering committee meetings will be used to share updates on this project with the 20 DFN partner organizations, with the goal of impacting on-going landowner programs carried out by partners such as the Wisconsin Tree Farm program, UW-Madison Extension, and the Wisconsin DNR. Outcomes will also be shared nationally through our partnership with the American Forest Foundation and work performed by the Aldo Leopold Foundation, the American Forest Foundation, and the USDA Forest Service through the newly created “Woodland Landowner Impact Center.” Oral and poster presentations on this work will be given by DFN partners at state and national Society of American Foresters and other professional societies annual meetings, with reference to SFI support of the project and outcomes.

4. *In the table below, please list the goals for your project.*

Project Goals	Actions	Tangible Outcomes	Measure Success	Grant Funds	In-Kind or Matching Funds
1. Audience identification for micro-targeted marketing	Define and identify target audience as recipients of micro-targeted messages and promotions	Procure past county cutting notices records for parcels (i.e., woodland owners) within the 12 county DFN project area and merge cutting history into DFN database. Evaluate the general “profile” for woodland owners with a cutting history.	Comprehensive database of cutting records across the project region for use with future campaigns.	\$6,000 (Research)	\$12,992.50 (Staff, WI DNR)  \$2,000 (Staff, Aldo Leopold Foundation)
2. Establish a baseline for landowner response.	Test existing messages to establish a baseline to measure future landowner response rates against.	Landowner response rate average(s) for comparison purposes in step 4.	Identify a baseline response rate for different target audiences in the DFN database.		\$20,000 (American Forest Foundation)
3. Develop effective messages and promotional materials for use in landowner programs	3.a. Professionally design and develop landowner program promotional materials, informed through social science research.	Tested, professionally developed messages and promotional materials for future use in landowner programs.	Rigorously tested messages are expected to produce higher response rates (compared to baseline response) with targeted audiences.	\$9,000 (Staff, NWTF)	\$2,500 (NWTF grant administration & travel)
	3.b. Through the use of 6 focus groups, test a range of promotional materials and messages that may be used to target	Tested messages and materials that are refined and identified as the most effective with particular landowner segments (e.g., those		\$18,000 (Education & Outreach)	\$5,000 (Staff, Aldo Leopold Foundation)

	different landowner segments (e.g., landowners with and without SFI certified lands, and those who are and are not members of conservation organizations).	already engaged in sustainable land management programs or those not already in programs).			
4. Implement and evaluate the effectiveness of a targeted marketing campaign designed to increase landowner engagement in conservation practices that improve oak regeneration.	4.a. Design and carry out a new landowner direct mail and email campaign (3,000 landowners total) based on focus group findings and tested messages and materials.	Reach 3,000 landowners with the tested messages and promotional materials.	Response rates from landowners, using targeted messages, will reach or exceed the averages from previous campaigns.	\$15,000 (Communications)	\$3,000 (Staff, Aldo Leopold Foundation)
	4.b. Evaluate the effectiveness of the direct mail and email campaign through quantitative analysis of the tracking data collected in the DFN database.	Quantitative analysis of the characteristics of landowners responding to the outreach campaigns.		\$12,000 (Research)	\$12,992.50 (Staff, WI DNR)

Project Timeline

*Please provide a timeline for completion of the project. Projects may range to a maximum of three years.*

Activity-Outcome	July 2014 – Dec 2014	Jan 2015 – June 2015	July 2015 – Dec 2015	Jan 2016 – June 2016
Database development and audience profiles	<b>Outcome –</b> Database and audience profiles			
Establish baseline of landowner response rates	<b>Outcome –</b> Baseline for later comparison			
Professionally prepared messages and promotional materials	<b>Outcome –</b> Prepared materials			
Design, implementation, analysis of focus groups		<b>Outcome –</b> Tested messages		
Redesign of messages and materials for landowner campaign		<b>Outcome –</b> Refined promotional materials		
Design and delivery of			<b>Outcome –</b>	<b>Outcome –</b>

landowner campaign			Campaign delivery	Defined characteristics of campaign respondents
Evaluation of landowner campaign				<b>Outcome</b> – Defined characteristics of campaign respondents
Preparation of final report				<b>Outcome</b> – Final report

Project Budget

Please fill out the table below to illustrate the entire Project budget. SFI Inc. will not award any funds for organization overhead costs, which include but are not limited to, office rent or maintenance, utilities, temporary hires, etc. While some portion of the grant may be used to offset staff salary and benefits, the focus should be on-the-ground activities.

Expenditure	SFI Grant Funds	Total Matching Funds	Source of Matching Funds*	In-Kind Contributions*	Source of In-kind Contributions	Total per expenditure category
<b>Staff Salary and Benefits</b>						\$45,985
NWTF Project Director	\$4,000					
NWTF National Forestry Programs Manager	\$2,000					
NWTF Communications Personnel	\$3,000					
NWTF Grant Administration				\$1,000	NWTF	
WI DNR				\$25,985	WI DNR	
Aldo Leopold Foundation				\$10,000	Aldo Leopold Foundation	
<b>Operating Costs</b>						
Research Activities	\$18,000			\$20,000	American Forest Foundation	\$38,000
Meetings						
Travel				\$1,500	NWTF	\$1,500
Education & Outreach (Focus groups)	\$18,000					\$18,000
Communications (Final Messaging Campaign)	\$15,000					\$15,000
<b>Total</b>	<b>\$60,000</b>			<b>\$58,485</b>		<b>\$118,485</b>

\*list sources and amounts of any matching funds or in-kind contributions for each project partner

## Grant Application

### Organization Information

Lead Organization Name and Address	Tlowitsis Tribe 1345 Bute Cresc Campbell River BC Canada V9W 6G7
Name, phone and email for Project Director	Gina Thomas 250 203 1353
Lead Organizational Mission Statement (25 words or less)	Tlowitsis Tribe is a First Nation government that exists to better the well being of its members
Lead Organization Annual Operating Budget	\$300,000
Two references (Name, Organization, email and phone) who can speak to the relevance and potential impact of the Project (these should not be the same as your Project partners):	William Wagner, RPF, PHD, email: wiwagner@shaw.ca; Phone:1 778 420 1861 Laura Chessor,RPF;Phone 250 286 9431;Email:Laura. Chessor@gov.bc.ca

### Project Overview

Project Title	Total Length of time for completion of project (in months, from commencement to final reporting)	Amount Requested from SFI	Total Project Budget (including matching funds and in-kind contributions)*	Brief Project Summary (50 words or less)	What element(s) of the SFI 2010-2014 Program are addressed by your Project? (Please cite the Standard Component(s))
Assessment of Non Timber Resources on Tlowitsis Traditional Territory.	Four months of field work in each of 2014 and 2015. Mapping data in the off season of 2014 and 2015.	170,000	80,000	Goal: protocols with tenure holders to maximize asset recovery prior to harvesting. Method: Search for and catalogue non timber assets within Tlowitsis traditional territory, which is located in the Great Bear Rain Forest and on Vancouver Island. Negotiate protocols as above and develop harvesting business in conjunction with an existing entity.	Capacity Building, part 2 of the RFP, along with Objectives 1,4,6,7,11,13. Also the requirement of tenure holders to consult the indigenous people with regard to proposed activity on traditional territory.

Project Partners

Confirmed Project Partners (list organization name only)	Primary Contact Name & Title	Complete Contact Information (Email, Phone Number, Mailing Address)	Brief Summary of Individuals and Organizations Qualifications and Experience (150 words or less per partner)
Western Forest Products	Paul Nuttal Planner; Email PNuttal@westernforest.com	250 286 4143	Largest tenure holder in territory. Member of PEFC. Largest forest products company on the West Coast

Project Details

Project Goals	Actions	Tangible Outcomes	Measure Success	Grant Funds	In-Kind or Matching Funds
To enhance the recovery of the resources existing in the working forest.	Collaborate with partners to obtain access to plans, maps and other data related to the forest base. The field work will discover what and where useable resources are and map them using satellite or GPS technology. The plotting and mapping work will be done during the time of year when assets are inaccessible.	The object is to be able to develop working relationships with others who are in the non timber resource business. This will allow the betterment of Tlowitsis members and others by making much more use of the natural forest. The ability to flag sensitive areas that should be harvested in an ecological manner will promote an improved forest for future generations. The land is much more than a single use resource.	The project will be a success if protocols are forthcoming whereby the non timber assets are recognized as being an integral part of the process.	Field work- two summers:120,000 Office work:20,000 Equipment and consumables:15,000 Meetings: 5,000 Travel: 5,000 Communications: 5,000	Research: 40,000; Office Work: 20,000; Equipment, logistics:20,000

## Project Timeline

The mobilization will take place starting July 1 and continue until October 31 each year. The reason is that snow often does not melt until late July at higher elevations and can reappear toward the end of October. The first year will concentrate on the Vancouver Island side and the second year will survey the Great Bear Rain Forest (GBRF). The Traditional Territory section on Vancouver Island begins adjacent to Sayward and Kelsey Bay and continues to the Bonanza Lake area, including the Robson Bight killer whale rubbing beach. The GBRF section begins near Sonora Island and goes to the mouth of Knight Inlet. The winter months will be used to transcribe the field findings to a data base which will be used when developing the protocols. Meetings will also take place with the Tenure holders over the same period.

Depending on what has been discovered in the first season, appropriate changes to the field work will be made. There are different tenure holders on each side of Johnstone Strait and working with them will need to be coordinated. At the end of the second field season the same mapping and assessment of the findings will take place. It will be possible, due to the fact that having two years of study in two distinct areas will permit the protocol process to proceed almost from the beginning. Modifications can be made as required depending on the realities of the conditions encountered.

During the two year time frame, any discoveries will be rolled into the development of the business opportunity. It is important to note that the work will be done by qualified Tribe members, so no outside direct involvement is needed.

Project Budget

Expenditure	SFI Grant Funds	Total Matching Funds	Source of Matching Funds*	In-Kind Contributions *	Source of In-kind Contributions	Total per expenditure category
<b>Staff Salary and Benefits</b>						
Manager	74,000					74,000
Field Crew	46,000					46,000
Transcription	20,000			20,000	Tlowitsis	40,000
<b>Operating Costs</b>						
Research Activities	15,000			20,000	Tlowitsis	35,000
Research Resources				20,000	Western Forest	20,000
Meetings	5,000					5,000
Travel	5,000			20,000	Tlowitsis	25,000
Education & Outreach						
Communications	5,000					5,000
<b>Total</b>	<b>170,000</b>			<b>80,000</b>		<b>250,000</b>

\*The in kind contribution from the Tlowitsis is in the form of owned assets. These include pick up trucks, ATVs, a 54' vessel suitable for accomodation and hauling ground vehicles- mostly the Atvs, smaller vessels such as a 27' crew boat. Also maps of the Traditional Territory which will define the search boundaries, office space and use of computers and related machinery. The contribution from Western will be maps cutting plan and other data it has that will be of use to the project.

Agreement to Public Communications

*As part of the Grant Application, the Lead Organization must complete and sign this page.*

*All identified organizations and partners involved in the Project must also agree to authorize SFI Inc. to publicize the Project and to use their names, images, logos and information about the Project in such publicity. All Organizations listed in the application will be required to sign an agreement to this effect and submit it with the application. If additional Organizations join the Project after an application is accepted by SFI Inc., they will also be required to sign the agreement. You can access an additional copy of this agreement for your Project Partners here:*



Agreement to Public  
Communications.doc

I, \_\_\_\_\_, as a representative of \_\_\_\_\_ and a Partner in "Assessment of Non Timber Resources on Tlowitsis Traditional Territory Project", hereby give the Sustainable Forestry Initiative® (SFI), Inc. permission to use my name, the organization name as written above, and any other information about the Project in public communications regarding the Project.

I understand that public communications include, but are not limited to:

- Press releases and announcements regarding the SFI® Inc. Conservation and Community Partnerships Grant Program.
- Public presentations, fact sheets, briefing notes and other communication materials that highlight successful Projects and the SFI Inc. Conservation and Community Partnerships Grant Program.
- Use of the Organization logo on the SFI Inc. website, on news releases or other materials.
- Other materials as appropriate.

SFI Inc. will not attribute quotes or opinions to my organization without permission.

With my signature below, I attest that, to the best of my knowledge, the information provided in this application is true and accurate, and I am authorized by \_\_\_\_\_ to sign this agreement.

Signed:

\_\_\_\_\_  
Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Organization

\_\_\_\_\_  
Date

**SFI Inc. Conservation & Community Partnerships Grant Program Request for Proposals  
Directions and Grant Application for 2014 Grant Projects**

Lead Organization Name and Address	Alliance for the Chesapeake Bay
Name, phone and email for Project Director	Craig Highfield, chighfield@allianceforthebay.org, (410) 267-5723
Lead Organizational Mission Statement (25 words or less)	Bring together groups to find solutions, build commitment to stewardship, and deliver broadly-supported programs that benefit the land, waters, and residents of the Chesapeake Bay.
Lead Organization Annual Operating Budget	\$2,800,000.00
Two references (Name, Organization, email and phone) who can speak to the relevance and potential impact of the Project (these should not be the same as your Project partners):	Bryan Seipp, Watershed Manager, Center for Watershed Protection, Vice-Chair, MD/DE SAF. Ellicott City, MD, bts@cwpp.org, 410-461-8323  Gary Allen, President, Maryland Forestry Board Foundation, gallenbay@aol.com, 301-717-1579.

Project Overview

The Project must relate to or support one or more elements of the SFI 2010-2014 Program. You can download a copy of the Standard and supporting documents from the SFI website here: <http://www.sfiprogram.org/sfi-standard/sfi-standards/>

Project Title	Total Length of time for completion of project (in months, from commencement to final reporting)	Amount Requested from SFI	Total Project Budget (including matching funds and in-kind contributions)*	Brief Project Summary (50 words or less)	What element(s) of the SFI 2010-2014 Program are addressed by your Project? (Please cite the Standard Component(s))
Maryland Public Television Sustainable Forestry Program	24	\$48,000	\$60,000	The project will be a 30 minute TV program depicting sustainable forest management. It will highlight a forest landowner that is a member of the ATFS, potentially a mill that uses sustainable forest products, and in general informs the public about opportunities for	The project will address SFI 2010-2014 elements: Forest Management Planning, Protection of Water Resources, Forest Productivity

				sustainable forest management.	and Health, Public Involvement, and Responsible Fiber Sourcing Practices in North America. It will reference Objectives of Sustainable Forestry 1, 2, 3, 7, 8, 9, 10, 17 & 20.
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*\* Matching funds and in-kind contributions should be reflected again in the budget outline below, indicating the source for each amount and Project Partner*

Project Partners

*\*For each Project Partner, please complete the following table. This application must include a signed copy of the Agreement to Public Communications for each listed partner, as well as the Lead Organization. A copy of this agreement may be found at the end of this document.*

Confirmed Project Partners (list organization name only)	Primary Contact Name & Title	Complete Contact Information (Email, Phone Number, Mailing Address)	Brief Summary of Individual's and Organizations Qualifications and Experience (150 words or less per partner)
Maryland Forest Service	Kenneth Jolly, Associate Director	kjolly@dnr.state.md.us, 410-260-8502, 580 Taylor Avenue, E-1, Annapolis, MD 21401	Kenneth directs operations for the MFS; a state agency with approximately 80 staff members. This agency maintains the state forests of Maryland and maintains the SFI certification for those lands. He is also a member of the Maryland Tree Farm Committee and offers his knowledge of tree farms and Sustainable Forest Certification to the project. The Maryland Forest Service is the SFI Program Participant for this project.
University of Maryland Extension (UME)	Jonathan Kays, Natural Resources Extension Specialist	18330 Keedysville Road, Keedysville, MD 27156 Phone: 301-432-2767 x323	Jonathan is a forester and principle researcher for UME. He has organized and directed numerous educational programs and projects, and he is valuable to the project for his ties to individual forest landowners and familiarization with tree farms and certification. UME is part of the

		Fax: 301-432-4089 Email: <a href="mailto:jkays@umd.edu">jkays@umd.edu</a>	College of Agriculture & Natural Resources, College Park, and assists thousands of Marylanders each year.
Maryland Tree Farm Committee	Scott English, Forester/MTFC Chair	US Army, Aberdeen Proving Ground, MD (410) 436-9804 Scott.d.english.civ@mail.mil	Scott is a forester and Tree Farm Committee Chairperson. The Maryland Tree Farm Committee will assist with program story development and provide the tree farm aspect of the project. The Maryland Tree Farm Committee is authorized to represent the American Forest Foundation's American Tree Farm System in the State of Maryland and interacts with over 1,000 landowners annually to maintain and increase the 147,000 acres of Tree Farm properties in the state. Scott is the primary contact for the Committee.

Project Details

*Please provide answers to the following questions to describe your project.*

1. *Please provide an introductory narrative describing (a) the basic methodology, and (b) the intended impact of your project.*

We will work directly Maryland Public Television staff to produce and broadcast a 30 minute television program that illustrates sustainable forestry occurring in Maryland and throughout the Mid-Atlantic region and promotes sustainable forestry practices, like those outlined in the SFI Standards, as vital to improving and maintaining forest health and protecting our streams, rivers and the Chesapeake Bay.

The program is intended to educate the region's private forest landowners and the general public about the ecological and economical benefits forests provide to everyone and how proper forest management can sustain them. The program will also inform viewers of the variety of forestry and natural resource organizations and agencies set up to support private landowners in stewardship like the American Tree Farm System (ATFS) and Maryland Forest Service.

For many landowners this program will be an impetus for them to become engaged in the management of their land; maybe prompting that initial call to their local state forestry office or motivating them to pursue American Tree Farm certification or inspiring them to grow trees instead of lawn. In general it will heighten public appreciation for working forests in the region. It will also dispel common misperceptions about forestry while helping to distinguish between sustainable and un-sustainable forestry practices.

The impact of this program will be exponential as 42% of Public Broadcast Service (PBS) stations also broadcast Maryland Public Television (MPT) produced programs. Therefore, the program has the potential to reach millions of individuals beyond the Mid-Atlantic region. MPT already has years of experience working with Maryland Department of Natural Resources in producing Emmy award winning programs.

2. *Please explain how your project will illustrate or inform the role of SFI in one or more of the five conservation categories listed on the first page (Note that SFI may consider compelling projects that may fall outside these categories)*

This project will illustrate and inform the public of the role of the SFI and its impacts of Forest Health and Water. Namely, the outcome of the project will 1) illustrate the role of SFI Standard requirements in promoting healthy forests and protecting water quality and quantity in rivers, streams, lakes, wetlands and other water bodies—specifically the Chesapeake Bay and tributaries. 2) It will present the advantages of being a forest landowner of working forest conservation easements. 3) The intersection between healthy, managed forests and public benefits, which could include clean air and water, wildlife habitat, and other ecosystem functions will be presented or referred to. 4) Illustrate the need for sustainably managed forests in a landscape that is challenged by fire, pests, disease, fragmentation to smaller woodland management units through development pressure, and climate change.

3. *What activities will you and your Project partners perform to promote the outcomes of your Project and SFI Involvement in the Project?*

The Alliance for the Chesapeake Bay will fund the project through the SFI grant. Maryland Public Television will broadcast the program. SFI and other contributors will be listed as sponsors at the beginning of each broadcast. We will promote the program and its distribution to other public broadcast outlets, state Tree Farm committees, state forest agencies, non-profit conservation groups (the Nature Conservancy, etc.), and the US Forest Service.

4. *In the table below, please list the goals for your project. For each goal, please describe: the actions you will take to achieve your goal; the corresponding tangible outcomes (e.g. provide implementation guidance on a component of the SFI Standard, landowners reached through education programs, acres positively affected by the Project); the means by which you will measure success in achieving each goal, and; the portion of the requested grant funds that would be used to achieve the goal. Add rows as needed to address all project goals.*

Project Goals	Actions	Tangible Outcomes	Measure Success	Grant Funds	In-Kind or Matching Funds
Educate the public about Sustainable Forestry at a local level.	A) Utilize Maryland Public Television resources to produce and broadcast a 30 minute program about Sustainable Forestry. B)	A program is produced and broadcast in Maryland that aids in additional Tree Farms being enrolled in the American Tree	It is thought that success will be measured in the number of PBS outlets that broadcast the program beyond its intended Mid-Atlantic audience target. 100% of the funds allocated by the SFI grant would be used	\$48,000	\$12,000

	Partners will provide direct involvement and oversight into the development of scripts and overall format of the TV program. C) Directly contact or arrange for the contact of potential program promoters in other states to be made aware of the content of the program and encourage its broadcast in various parts of the country.	Farm System. Landowners contact the UMD Extension, DNR Forest Service, Alliance for the Chesapeake Bay	to produce the program. This amount would cover at least a 30 minute broadcast. Large areas of the country could be impacted/reached through the broadcast (upwards of 40% of usual MPT broadcast content). However, this would be a unique program and offer insight into issues that affect all of the US and Canada. Therefore the potential for much greater viewership exists.		
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Project Timeline

*Please provide a timeline for completion of the project. Projects may range to a maximum of three years. Projects will commence at the time the Grant Agreement is signed, soon after notification of acceptance of your proposal. The timeline should indicate when you will deliver upon the goals and outcomes – project payments will be tied to attainment of project milestones and will be generally be made on a six-month payment schedule. SFI will receive and process invoices during a brief window each quarter (eg. in March, June, September and December). The specific timeline for each project will dictate the schedule of reports and payments.*

- 
- April/May 2014: Partners develop outline of program.
  - May 2014: Loose Program Treatment including goals and objectives with Maryland Public Television.
  - August/September 2014: Pre-production\identification of stories\locations. (milestone 1)
  - August 2014 through June 2015: Writing\Seasonal location production.
  - July 2015: Post production editing\Audio\Closed Captioning\DVD Production. (milestone 2)
  - July\August 2015: Program Delivery. (Final goal delivery)
  - August 2015 to April 2016: Program is broadcast.
-

**Project Budget**

Please fill out the table below to illustrate the entire Project budget. SFI Inc. will not award any funds for organization overhead costs, which include but are not limited to, office rent or maintenance, utilities, temporary hires, etc. While some portion of the grant may be used to offset staff salary and benefits, the focus should be on-the-ground activities.

You may modify this table to fit your needs, however please ensure your budget addresses the following components:

1. Portion of the budget to be allocated to each staff person working on the Project
2. Total Operating costs by line item, eg. travel, meetings, communications, education & outreach (please add categories as needed)
3. Identify any in-kind support allocated to this Project by each project partner
4. Identify any matching funds allocated to this Project by each project partne

<b>Expenditure</b>	<b>SFI Grant Funds</b>	<b>Total Matching Funds</b>	<b>Source of Matching Funds*</b>	<b>In-Kind Contributions*</b>	<b>Source of In-kind Contributions</b>	<b>Total per expenditure category</b>
<b>Staff Salary and Benefits</b> (please list budget amount individually per staff person)			Maryland Tree Farm Committee (\$5,000) University of Maryland Extension (\$2,000)	\$1,000 Kenneth jolly \$1,000 Robert Feldt \$1,000 David Gailey \$1,000 Wayne Merkel	Maryland DNR Forest Service (Staff time)	\$4,000
<b>Operating Costs</b>						
Production (Filming, Post production, Editing, etc.)	\$48,000	\$7,000				\$55,000
Meetings						
Travel				\$500		\$500
Education & Outreach						
Communications				\$500		\$500
<b>Total</b>	<b>\$48,000</b>	<b>\$7,000</b>		<b>\$5,000</b>		<b>\$60,000</b>

\*list sources and amounts of any matching funds or in-kind contributions for each project partner

**SUSTAINABLE FORESTRY INITIATIVE (SFI)  
CONSERVATION GRANT APPLICATION**

**Blackfoot Community Conservation Area - Best Management Practice Project**

**Organization Information**

Lead Organization Name and Address	Blackfoot Challenge, 103 Main St., Ovando, MT, 59854
Name, phone and email for Project Director	Brad Weltzien, Land Steward cell 406-210-9900, office 406-793-3900, <a href="mailto:brad@blackfootchallenge.org">brad@blackfootchallenge.org</a>
Lead Organizational Mission Statement (25 words or less)	Coordinate efforts that conserve and enhance the natural resources and rural way of life of the Blackfoot Watershed for present and future generations.
Lead Organization Annual Operating Budget	\$1,638,736
Two references (Name, Organization, email and phone)	Tim Love, District Ranger, Lolo Nat'l Forest, <a href="mailto:tlove@fs.fed.us">tlove@fs.fed.us</a> , 406-677-2233 Jay Kolbe, Wildlife Biologist, Fish, Wildlife, and Parks, <a href="mailto:jkolbe@mt.gov">jkolbe@mt.gov</a> , 406-499-2356

**Project Overview**

Project Title:	Total Length of time for completion of project	Amount Request from SFI	Total Project Budget (including matching funds and in-kind contrib.)*	Brief Project Summary (50 words or less)	What element(s) of the SFI 2010-2014 Program are addressed by your Project?
Blackfoot Community Conservation Area (BCCA)- Best Management Practice Project	15 months (June 1, 2014 – Sept 1, 2015)	\$28,510	\$58,380	The project aims to improve and maintain water quality and aquatic organism passage to Warren Creek through the implementation of BMPs along the historic Haul Road. The project will also increase awareness of BMPs and develop a framework among multiple road users to sustain BMP standards into the future.	Water (1)

*\*Matching funds and in-kind contributions should be reflected again in the budget outline below, indicating the source for each amount and Project Partner*

## Project Partners

Confirmed Project Partners	Primary Contact Name & Title	Contact Info. (Email, Phone #, Mailing Address)	Brief Summary of Individual's and Organizations Qualifications and Experience (150 words or less per partner)
Pyramid Mountain Lumber, Inc. (PML)	Gordy Sanders, Manager	<a href="mailto:GSanders@PYRAMIDLUMBER.COM">GSanders@PYRAMIDLUMBER.COM</a> , 406-677-2202, Seeley Lake, MT 59868	<b>SFI Program Participant.</b> SAF Certified Forestry Professional, Resource, and SFI Manager for Pyramid Mountain Lumber, Inc. with over 40 years experience in the forestry profession.
The Nature Conservancy (TNC)	Steve Kloetzel, Land Steward	<a href="mailto:skloetzel@TNC.ORG">skloetzel@TNC.ORG</a> , 406-793-0028,	<b>SFI Program Participant.</b> Steven Kloetzel, Western Montana Land Steward for The Nature Conservancy of Montana since 2004, stewards lands involved in the Conservancy's Blackfoot Community and Montana Legacy Projects. Steve has actively managed up to 330,000 acres of former Plum Creek timber lands for wildlife habitat, livestock grazing, weed control and public recreation of many forms. He has initiated several forest, native prairie, riparian and wetland restoration projects on Conservancy lands as well as neighboring properties. Steve has a 1989 BS in Forestry Resource Conservation from the University of Montana. Prior to working for the Conservancy, Steve spent 14 years working on native plant restoration and enhancement projects throughout the West.
MT Dept Natural Resources and Conservation (DNRC)	Neil Simpson, Service Forester	<a href="mailto:nsimpson@mt.gov">nsimpson@mt.gov</a> , 406-244-2382, 48455 Sperry Grade Rd. Greenough MT, 59801	The DNRC, and Neil as a DNRC Service Forester, is responsible for enforcement of and education about the SMZ law and Forestry Best Management Practices. Neil has worked as a professional forester for ten years, prior to that he worked as a logging and road construction laborer.
MT Fish, Wildlife, and Parks (FWP)	Ron Pierce, Fisheries Biologist	<a href="mailto:rpierce@mt.gov">rpierce@mt.gov</a> 406-542-5532, 3201 Spurgin Rd Missoula, MT 59801	Professional state fisheries biologist in the Blackfoot Watershed for over 20 years.
Big Blackfoot Chapter of Trout Unlimited (BBCTU)	Ryen Neudecker, Project Manager	<a href="mailto:ryen@montanatu.org">ryen@montanatu.org</a> , 406-240-4824, PO Box 1, Ovando, MT 59854	BBCTU has spearheaded the restoration of numerous tributaries in the Blackfoot Watershed for over 20 years. Ryen has been the Project Manager for over 10 years implementing numerous and highly successful projects on the ground annually.

US Fish and Wildlife Service (FWS)	Randy Gazda, Biologist	<a href="mailto:randy_gazda@fws.gov">randy_gazda@fws.gov</a> , (406)793-7402 PO Box 66 Ovando, MT 59854	Randy received a Bachelor of Science degree in Fish and Wildlife Science from South Dakota State University in 1991 and a Masters of Science in Wildlife Biology from the University of Montana in 1994. While going to college he worked for the Iowa DNR, Idaho Fish and Game and the USFWS in South Dakota and Montana. He has worked for the USFWS Partners for Fish and Wildlife Program for the last 20 years as a Fish and Wildlife Biologist, this program is focused on restoring habitat by working with private landowners.
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## **Project Details**

- Please provide an introductory narrative describing (a) the basic methodology, and (b) the intended impact of your project.*

The project focuses on the implementation of Best Management Practices (BMPs) on the BCCA "Haul Road" to mitigate impacts to streams and wetlands, increase awareness of BMP benefits, and develop a framework to sustain BMPs over time. Multiple partners support this project with financial, in-kind, and technical resources that directly benefit the natural resources and public alike. The methods and desired impacts are described below.

**BMP Implementation:** The methodology to be employed is Montana BMP standards. The intended impact of the project is to enhance water quality by reducing sediment inputs to the stream/wetland system and provide for uninhibited aquatic organism passage above and below road crossings. The project will correct long-needed and historic road issues along 4.2 miles of road with a total of 7 stream/wetland crossings.

**BMP Awareness:** The project will act as a vector for increasing BMP and SFI awareness through numerous annual tours, articles, and signage that identifies the project and its partners.

**Management framework:** The BCCA Council recognizes the importance of water quality for present and future generations and intends to develop and implement a framework among all road-users to sustain BMP standards in the future.

**Sustainable Forest Management:** The BCCA consists of 41,000 acres of cooperatively managed state, federal, and private land. Within this vast block, sits the 5,600 acre BCCA "Core" purchased by the Blackfoot Challenge in 2009 with enormous help from the community and multiple private and public partners. Although the Blackfoot Challenge owns the property, they have delegated management responsibility to a 15-member council that includes representatives of all the ownerships and diverse

community members. The primary goal is to balance and optimize multiple natural resource objectives using a working landscape model that benefits the public and conserves resources for future generations.

The BCCA Core is primarily forested with a long history of timber harvesting. Many of the forest stands were high-graded in the past and are in various stages of regeneration. Significant strides have been made with pre-commercial thinning and fuel treatments but much work remains. The BCCA Council is presently developing a forest management plan that shares many SFI Standards and will provide a systematic pathway to manage its forest resources. In fact, the implementation of BMPs will lay the foundation for implementing sustainable forest management practices on this land.

The Haul Road provides access for forest management activities on BC, FWP, DNRC, and private inholdings. Due to limited timber harvests in the recent past, sufficient financial resources have not been generated to implement and meet BMP standards. The Haul Road is also significant because it presently provides DNRC with a sensible surrogate route for accessing their forest lands rather than exercising their lawful right and expending significant resources to develop over 2-miles of roads through FWP property to reach the same point. It is hoped this project will help solidify this surrogate route in the future.

Threatened Species and Species of Concern: Warren Creek is listed as “impaired” on the Total Maximum Daily Load (TMDL) 303d list for sediment, passage barriers, and low flow. The Haul Road traverses multiple tributaries and wetlands that converge downstream to form the main stem of Warren Creek on the valley floor. The Creek supports WSCT and has connectivity to the Blackfoot River which is designated as critical habitat for Bull Trout. Both fish species require tributaries with cold, clean, and connected water to complete their life cycle. Such tributaries are often located in forested locations with active forest management and other road access thus placing great significance on both forestry and road BMPs to maintain and improve proper water quality conditions. BMP implementation on the Haul Road would be a significant step in reducing sediment loads to Warren Creek over time.

*2. Please explain how your project will illustrate or inform the role of SFI in one or more of the five conservation categories listed on the first page.*

WATER is the primary conservation category being addressed through this grant request. The BCCA provides a living model for balancing multiple conservation objectives among diverse stakeholders. A universally shared value among council members is clean and unobstructed water – and the desire to protect it for future generations. This project will demonstrate the value of implementing and maintaining road BMPs to enhance water quality and aquatic organism passage. The area is used for numerous field tours annually by a variety of visiting groups and will act as a

demonstration area for proper road maintenance that meet SFI Standards and sustains forest management on the ground.

3. *What activities will you and your Project partners perform to promote the outcomes of your Project and SFI Involvement in the Project?*

The installation of BMP structures is a proven method to minimize sediment inputs to streams and maximize road resiliency. The applicant and its partners have collaborated to document road maintenance needs in a BMP road log plan. Partners will assist in implementing components of the plan including: request for proposals, permitting, project oversight, framework for future-shared maintenance, and the contribution of financial, in-kind, and technical resources.

The project will be identified with a sign that illustrates SFIs involvement in the project and referenced to various groups that tour the area. SFI's involvement in the project will also be highlighted in the Blackfoot Challenge's quarterly newsletter and articles in local newspapers to explain the benefits and rationale of BMPs.

4. *In the table below, please list the goals for your project. For each goal, please describe: the actions you will take to achieve your goal; the corresponding tangible outcomes (e.g. provide implementation guidance on a component of the SFI Standard, landowners reached through education programs, acres positively affected by the Project); the means by which you will measure success in achieving each goal, and; the portion of the requested grant funds that would be used to achieve the goal. Add rows as needed to address all project goals.*

Project Goals	Actions	Tangible Outcomes	Measure Success	Grant Funds	In-Kind Match Funds
Improve Water Quality	<ul style="list-style-type: none"> <li>• Improve road profile</li> <li>• Install BMP structures; slash filters, rolling dips, road flaps</li> <li>• Add road material and filter fabric</li> <li>• Water quality monitoring</li> </ul>	<ul style="list-style-type: none"> <li>• Stable road surface with proper drainage and filtration</li> <li>• Improved water quality</li> </ul>	<ul style="list-style-type: none"> <li>• Reduction of sediment to streams and wetlands while performing sustainable forest management</li> <li>• Comparative data from pre- and post-project water quality samples</li> </ul>	15,060	14,600

Provide Aquatic Organism Passage	<ul style="list-style-type: none"> <li>Removal aquatic organism passage barriers</li> <li>Install properly sized and positioned culverts</li> </ul>	<ul style="list-style-type: none"> <li>Aquatic organism passage</li> <li>Stream and wetland connectivity</li> </ul>	<ul style="list-style-type: none"> <li>Aquatic organism passage</li> <li>Absence of undersized and perched culverts</li> <li>Absence of stream degradation/aggradation</li> </ul>	13,450	12,370
Increase BMP Awareness	<ul style="list-style-type: none"> <li>Demonstrate the benefits and rationale of BMPs to visiting tour groups</li> <li>Write articles about the project in the Blackfoot Challenge newsletter and local papers</li> <li>Post signage that identifies the project and partners</li> </ul>	<ul style="list-style-type: none"> <li>Increased understanding of BMP significance to water quality and aquatic organisms</li> <li>BMPs replicated on additional properties</li> </ul>	<ul style="list-style-type: none"> <li>Increased understanding of BMP significance to water quality and aquatic organisms</li> <li>BMPs replicated on additional properties</li> </ul>	0	\$1,600
Develop Management Framework to Sustain BMP Standards	<ul style="list-style-type: none"> <li>BCCA Council and workgroup meetings to develop framework</li> </ul>	<ul style="list-style-type: none"> <li>Framework for maintenance developed</li> <li>Contribution of financial and in-kind resources by road users</li> <li>BMPs maintained indefinitely</li> </ul>	<ul style="list-style-type: none"> <li>BCCA Council utilizes framework</li> <li>BMPs maintained indefinitely</li> <li>Adequate shared resources available</li> </ul>	0	\$1,300

**Project Timeline**

*Please provide a timeline for completion of the project. Projects may range to a maximum of three years. Projects will commence at the time the Grant Agreement is signed, soon after notification of acceptance of your proposal. The timeline should indicate when you will deliver upon the goals and outcomes – project payments will be tied to attainment of project milestones and will be generally be made on a six-month*

*payment schedule. SFI will receive and process invoices during a brief window each quarter (eg. in March, June, September and December). The specific timeline for each project will dictate the schedule of reports and payments.*

The project will take 15 months to implement and will be conducted in several phases to correspond to favorable weather conditions. Project preparation will begin June 1, 2014 and final reporting will be submitted September 1, 2015.

Milestones	Qty	June 1, 2014	August 1, 2014	October 1, 2014	September 1, 2015
Project Commencement	-				
Water quality monitor	-				
Layout, design, permits, RFP, contract, materials	-				
Culvert upgrades, filters, armoring, fill (300yd)	4				
Rolling dips, filters	8				
Profile adjustments	300ft				
Flappers	4				
Fill Material	500 yd				
Heavy grading	4.2 mi				
Water quality monitor	-				
SFI/Partner Signage	1				
Tours/Articles	6/3				

**Project Budget**

*Please fill out the table below to illustrate the entire Project budget. SFI Inc. will not award any funds for organization overhead costs, which include but are not limited to, office rent or maintenance, utilities, temporary hires, etc. While some portion of the grant may be used to offset staff salary and benefits, the focus should be on-the-ground activities.*

*You may modify this table to fit your needs, however please ensure your budget addresses the following components:*

- 1. Portion of the budget to be allocated to each staff person working on the Project*
- 2. Total Operating costs by line item, eg. travel, meetings, communications, education & outreach (please add categories as needed)*
- 3. Identify any in-kind support allocated to this Project by each project partner*
- 4. Identify any matching funds allocated to this Project by each project partner*

Numerous partners recognize the importance of increasing awareness of BMPs and demonstrating their use and benefits along the BCCA Haul Road. Partners have rallied support for this project through various levels of financial, in-kind, and technical resources outlined below.

Expenditure	SFI Grant Fund	Total Match Funds	Source Match Funds	In-Kind Contrib.	Source of In-kind Contribution	Total per Category
<b>Staff Salary &amp; Benefits</b>						\$7200
Brad Weltzien (BC)		4800	BC			
Neil Simpson (DNRC)				600	DNRC	
Ryen Neudecker (BBCTU)				300	BBCTU	
Shain Hendrickson (FS)				300	FS	
Traci Bignell (BC)		1200	BC			
<b>Operating Costs</b>						
Meetings						\$1000
BCCA Council Meetings				1000	BCCA Council	
Travel						\$800
BCCA Land Steward		800	BC			
Education & Outreach						\$1250
Tours				750	BC/ Partners	
Articles				300	BC	
SFI/Partner Signage		200	BC			
Materials and Labor						\$48,130
Rolling dips (8)	1400					
Berm removal (500ft)	550					
Profile adjust/thru cut	1350					
Filter fabric (600ft)	2100					
1"Crushed gravel (10yds)	250					
Culvert removal/install (4)	8450					
Culverts (4)				4420	FWP/USFS	
Slash filter install	810					
Road flaps (2) and install	810			500	DNRC	
Rock armoring and install	500			300	BC	
Pit run gravel (800yd)				3000	BC	
				3000	Valiton	
				3000	FWP	
Pit run (haul and install)	9000					
Heavy blading (4.2 mi)	2240	1000	TNC			
		1500	FWP			
		300	DNRC			
Misc. excavation (10hr)	1050	300	BC			
Weed control		800	BC			
Water monitor and report		1500	TNC			
<b>Total</b>	<b>\$28,510</b>	<b>\$12,400</b>		<b>\$17,470</b>		<b>\$58,380</b>

\*list sources and amounts of any matching funds/ in-kind contributions [for each project partner](#)

[Paul.Trianosky@sfiprogram.org](mailto:Paul.Trianosky@sfiprogram.org)

**Sustainable Forestry Initiative, Inc.**

900 17th St. NW, Suite 700

Washington, DC 20006

**Attention: Paul Trianosky**

Senior Director of Conservation Partnerships

Phone: 423-727-7222

E-mail: [Paul.Trianosky@sfiprogram.org](mailto:Paul.Trianosky@sfiprogram.org)

**Grant  
Appli  
cation  
Temp  
late**

**Sustainable Forestry Initiative, Inc.**

900 17th St. NW, Suite 700

Washington, DC 20006

**Attention: Andrew de Vries**

Vice President, Conservation and Indigenous Relations

Phone: (613) 424-8734

E-mail: [Andrew.Devries@sfiprogram.org](mailto:Andrew.Devries@sfiprogram.org)

*Application Requirements:*

- *Proposals must follow this application format.*
- *Applications cannot be longer than 8 pages (Note that the required agreements to Public Communications, and the Lead Organization's current proof of non-profit status do not count towards the 8 page maximum).*
- *You may delete all text that precedes this section and any text in italics throughout the application.*

*All applications must include the following items:*

Organization Information

Lead Organization Name and Address	Clackamas River Basin Council PO Box 1869 Clackamas, OR 97015
Name, phone and email for Project Director	Cheryl McGinnis, Executive Director e-mail: cheryl@clackamasriver.org telephone: 503-303-4372 (ext. 100)
Lead Organizational Mission Statement (25 words or less)	We foster watershed partnerships for clean water, fish and wildlife habitat improvement and the quality of life for those who live, work here (modified).
Lead Organization Annual Operating Budget	\$1,144,913
Two references (Name, Organization, email and phone) who can speak to the relevance and potential impact of the Project:	Michael Chaveas, District Ranger, Clackamas River Ranger District, Mt. Hood National Forest. e-mail: mchaveas@fs.fed.us telephone: 503-630-8701 Tom Salzer, District Manager, Clackamas County Soil and Water Conservation District e-mail: tsalzer@conservationdistrict.org telephone: 503-210-6001

Project Overview

Project Title	Total Length of time for completion of project (in months, from commencement to final reporting)	Amount Requested from SFI	Total Project Budget (including matching funds and in-kind contributions)*	Brief Project Summary (50 words or less)	What element(s) of the SFI 2010-2014 Program are addressed by your Project?
Collaborative Stewardship Capacity Building Project	24 months	\$24,000	\$24,000	This project will evaluate CSP financial support alternatives; include prioritized components into ongoing strategic planning activities and produce a multi-year CSP business plan that expands, diversifies and stabilizes financial support sufficient to implement the strategic plan.	<p>Section 2, Objective 17. Community Involvement in sustainable forestry.</p> <p>Section 2, Objective 18. Sustainable forestry management on public lands.</p> <p>Section 2, Objective 15. Forestry research, science and technology.</p>

**Project Partners**

Interfor U.S., Inc.	Charles H. Burley Government Affairs Manager Pacific Northwest Operations	PO Box 638 #1 Sawmill Road Gilchrist, OR 97737 (541) 876-7880 chuck.burley@interfor.com	Interfor is committed to responsible stewardship of the environment. We support good stewardship of all forest resources in a sustainable manner that is environmentally appropriate, socially beneficial and economically viable. And we promote the use of our wood products as a good choice for the environment.  Charles Burley is a Certified Forester® and has over 30 years of experience in forest management and policy. He is one of Interfor’s representatives on the Clackamas Stewardship Partnership.
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**Project Details**

*1. Introductory Narrative:*

The Clackamas Stewardship Partners (CSP) are a collaborative organization made up of diverse stakeholders with the common goal of restoring ecological functions and economic conditions in the Clackamas River Basin, located on the south and southwest sides of Mt. Hood in northwestern Oregon. CSP has been highly effective in addressing conflicts and disagreements among disparate stakeholders, which historically has been the central issue impeding watershed and landscape scale restoration activities in the 600,000-acre Clackamas River Basin. Reflecting its early successes in the collaborative arena, CSP was one of five groups nationally to be awarded the “Two Chiefs’ Partnership Award” in 2008 by the Chiefs of the Forest Service and Natural Resources Conservation Service. CSP employs stewardship contracting and other innovative tools to accomplish terrestrial and aquatic restoration objectives.

Since ecosystems cross jurisdictional boundaries, it is critical for CSP to support restoration projects in the lower stem of the Clackamas River (primarily County and private land) to benefit habitat in the headwaters of the Clackamas River (primarily USFS land). Of the over \$6,000,000 in total CSP-recommended projects to date, a recent project well illustrates coordination across land jurisdictions. In September 2011 CSP recommended that \$192,444 of retained stewardship contracting receipts be used to complete the Lower Clear Creek riparian restoration project (total project cost = \$692,510), which was implemented cooperatively by the Clackamas River Basin Council and Oregon Department of Fish and Wildlife--both of which are CSP member organizations--together with Metro,

Oregon Wildlife Foundation, and Portland General Electric. CSP members will continue to complete projects on private and Clackamas County lands that improve ecosystem functions on National Forest lands.

CSP activities directly contribute to be the creation and maintenance of jobs in Clackamas County while creating a better environment in which its citizens can live, work, and recreate. CSP is responsible for over \$6,000,000 in job-creating restoration projects completed or under contract in the Clackamas River Basin, including \$2,830,000 as a direct result of \$99,970 invested by the Mt. Hood National Forest Resource Advisory Committee (RAC) in 2009 and 2010. A recent employment and economic impact study indicates that “forest and watershed restoration contracting leads to between 15.7 and 23.8 jobs per \$1 million dollars of public investment and results in an additional 1.4 to 2.4 times the amount of economic activity as public dollars cycles through Oregon’s economy”<sup>1</sup>. The Mt. Hood National Forest and local communities will continue to benefit from CSP’s successful activities if CSP is able to continue to function as effectively as a collaborative group in the future as it has in the past.

CSP members are currently engaged in strategic planning activities and have identified balanced and diverse financial support as essential for CSP to reach its collaborative and project implementation goals and objectives. Critical to this effort is the role played by the CSP Facilitator. Specifically, funding is being sought from the SFI Conservation and Community Partnerships Grant Program to support the CSP Facilitator in completing CSP’s ongoing strategic planning process and develop and implement a multi-year business plan to address near- and long-term plan priorities.

The CSP Facilitator will be responsible for completing the following three phases of this proposal within the 24 month project period, with significant involvement by CSP stakeholder representatives:

- a. Compile, assess and prioritize diverse financial support alternatives based on CSP’s mission compatibility, development / implementation resource demands, potential for generating significant financial support, probability of success and sustainability.
- b. Prioritized resource assessment and diversification plan components will be integrated into ongoing strategic planning activities during the project period.
- c. Produce and implement a multi-year Clackamas Stewardship Partners business plan designed to systematically expand, diversify and stabilize financial support at levels necessary to implement the revised strategic plan.

## 2. SFI Conservation Categories:

- a. Forest Health: Clackamas Stewardship Partners has been extensively involved in US Forest Service thinning projects in the Mt. Hood National Forest that are designed to reduce fuel loads, enhance age and species diversity and provide sustainable timber harvest opportunities. Stabilized CSP Facilitator involvement enhances opportunities for member engagement and longer term project planning.
- b. Capacity Building: Community-based stewardship organizations encounter similar support and capacity building challenges when they depend upon narrow bases of funding to staff organizations.

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<sup>1</sup> <http://ewp.uoregon.edu/sites/ewp.uoregon.edu/files/downloads/BP23.pdf>

CSP’s systematic approach to evaluating financial support options and linking business plan development to its strategic planning activities will produce tools and processes that are transferable to other organizations with similar missions. SFI’s investment in this CSP project has the potential for broad returns.

- c. Wildlife, Fish and Biodiversity: CSP plays an important role in convening a broad cross section of Clackamas Basin stakeholders which improves communication and collaboration on aquatic and terrestrial habitat restoration / enhancement projects. CSP also assists the US Forest Service in investing in habitat improvement through the retained receipts program.

*3. Activities to promote the outcomes of this Project and SFI Involvement in the Project:*

Once CSP has been notified that SFI has approved this project funding request, the CSP Facilitator will post a prominent announcement on its website and inform local and regional media outlets. Further information will be disseminated through CSP’s broad member network. Quarterly SFI projects will be posted on the CSP website. CSP will seek out education and conference opportunities to describe project processes, outcomes and SFI’s essential project support role.

*4. Project Goals and Timeline:*

Project Goals & Timeline	Actions	Tangible Outcomes (deliverables) & Timeline	Measure Success	Grant Funds
<p>Goal 1. Diverse financial support options are evaluated / prioritized for inclusion in revised strategic plan.</p> <p>Completed by month 6.</p>	<p>1a. Survey NW collaborative groups on resource development outcomes.</p> <p>1b. Additional research compiles range of CSP eligible fundraising options.</p> <p>1c. Options are evaluated and ranked according to feasibility, time frame, probability of success and compatibility with CSP mission and strategic plan.</p>	<p>1. CSP members have access and guidance to a full range of viable financial development options (assessment produced and presented to CSP members, also available online and document formats).</p> <p>Completed by month 6.</p>	<p>1. CSP’s range of financial support increases organizational stability, expands community engagement and promotes project capacity.</p>	<p>\$6,000</p>

Project Goals & Timeline	Actions	Tangible Outcomes (deliverables) & Timeline	Measure Success	Grant Funds
<p>Goal 2. CSP stewardship capacity expands due to broadening financial during project period.</p> <p>Completed by month 14.</p>	<p>2. Several short-term diversified fundraising options are selected and implemented within revised CSP strategic planning activities.</p>	<p>2. Financial support increases by at least 25% during 2<sup>nd</sup> project period from at least 2 new sources.</p> <p>Completed by month 14.</p>	<p>2. Expanded fiscal support allows CSP focus additional resources on addresses watershed challenges and coordinating responses.</p>	<p>\$8,000</p>

Project Goals & Timeline	Actions	Tangible Outcomes (deliverables) & Timeline	Measure Success	Grant Funds
<p>Goal 3: CSP business plan provides long-term financial platform to support additional stewardship work.</p> <p>Completed by month 24.</p>	<p>3. CSP develops and implements a multi-year business within overall strategic plan.</p>	<p>3. CSP members review, adopt and direct implementation of business plan with intermediate and long-term components.</p> <p>Business plan will be posted online and forwarded to other stewardship groups upon request.</p> <p>Completed by month 24.</p>	<p>3. Adoption and implementation of CSP business plan within the strategic plan provides stakeholders, watershed residents and potential financial supporters a clear statement of where CSP is headed, why that direction is important, how their involvement and fiscal support would be invested and expected outcomes.</p>	<p>\$10,000</p>

Project Budget

<b>Expenditure</b>	<b>SFI Grant Funds</b>	<b>Total Matching Funds</b>	<b>Source of Matching Funds*</b>	<b>In-Kind Contributions*</b>	<b>Source of In-kind Contributions</b>	<b>Total per expenditure category</b>
<b>Staff Compensation</b> 0.25 FTE contractor @ \$30.00 hr for 24 months	\$24,000.					\$24,000
<b>Operating Costs</b>						
Research Activities						
Meetings						
Travel						
Education & Outreach						
Communications						
<b>Total</b>	<b>\$24,000</b>					<b>\$24,000</b>