Forest Resources and Technologies (FOREST) Project

Cooperative Agreement Number 118-A-00-00-00119-00

Year Two Annual Report

July 1, 2001 – June 30, 2002

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Submitted by
Winrock International
Chemonics International Inc.
The Heron Group, LLC

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Table of Contents

Executive Summary

As of July 2002, Winrock International and its partners completed Year Two of the five-year Forest Resources and Technology (FOREST) Project. The FOREST Project is designed to improve sustainable forest management in Siberia and the Russia Far East by improving fire prevention, monitoring forest pests, supporting value-added processing of forest products, and introducing biomass energy. FOREST has offices in Khabarovsk, Sakhalin, and Krasnoyarsk and additionally implements activities in Irkutskaya Oblast, Primorski Krai, Tomskaya Oblast, Tuva and Khakassia Republics.

FOREST uses a holistic approach to development, focusing on the forestry sector to improve the environment by supporting businesses, strengthening NGOs and associations, improving advocacy skills, making businesses more transparent, helping businesses get loans, involving students in civic initiatives, improving export standards, making information available and accessible, and using Russian volunteers. FOREST has results in three of the seven main Strategic Objectives of USAID/Russia (11 intermediate results) and by the end of the project we anticipate additional results from activities implemented during the second year of the project.

FOREST is designed to support USAID/Russia's Strategic Objective 1.6 *Environmental resources managed more effectively to support economic growth*. In the first two years, FOREST has supported five business associations consisting of 170 members (four women). To date, 12 businesses have showed improved performance. Fifteen NGOs are implementing the fire prevention campaign (environmental education) and five business associations were trained in advocacy. The groundwork is laid to decrease human-caused fires, 33,750 hectares are being monitored for pest outbreaks, and staff of the Forest Protection Centers in five regions have been trained in pest monitoring techniques introduced by FOREST.

A company's business plan for biomass boiler resulted loan offers ($10 million for 5+ years at 10-12%). The fire prevention campaign is actively involving more than 7,500 students to reduce forest fires in their local community.

FOREST is providing NGOs with information to share with their beneficiaries, developing websites, and posting project research and findings on those websites. Project workshops have convened NGOs, businesses, and government representatives to jointly solve barriers to economic growth and forest protection. Finally, through volunteer technical assistance, FOREST has recruited and used nine Russian volunteers (two women and seven men) who worked for a total of 5.4 person months.

FOREST, in addition meeting environmental indicators, is also achieving results in Strategic Objectives 1.3, Small and Medium Size Enterprise Sector Strengthened, 1.4 Market-Oriented Reforms and 2.1 A More Open Participatory Society.

The report that follows describes the activities that were planned for the second year of FOREST, the results, findings, and challenges. In addition to achieving concrete results already, the activities of Year Two set the foundation for significant results over the next three years.

I. Introduction

Winrock International, in partnership with Chemonics and the Heron Group, was awarded the Forest Resources and Technology (FOREST) Project on July 21, 2000. This five-year project is based in Khabarovsk, Russia, and will be implemented July 2000-July 2005 in the Russia Far East and Siberia. The major goals are to reduce the threat of global climate change and preserve biodiversity by promoting sustainable forest management and preserving Russian forests as a globally important carbon sink and critical habitat for rare and endangered species.

The FOREST Project is achieving these goals by focusing on four technical components: forest fire prevention, pest monitoring, non-timber forest products and secondary wood processing, and renewable energy alternatives. In addition to the four primary components, three crosscutting components (forest policy and legal reform, applied forestry research, and grants) support the technical components. This second annual report covers FOREST Project activities from July 1, 2001-June 30, 2002.

Annual Highlights
Fire Prevention

- Eighty-eight percent of 656 randomly sampled people in the target areas of the fire prevention general awareness campaign recognized the FOREST Project's message "8 out of 10 forest fires are caused by people."
- More than 750 individuals and groups participate in the Fire Prevention Contact Group and receive information and, in some cases, training.
- More than 200 teachers were trained and are implementing the forest fire prevention awareness program for school-aged children in Khabarovski Krai.
- The Khabarovski Krai Ministry of Education wrote a letter of endorsement to introduce FOREST's *Fire Prevention Education Program* into the regular school systems and after-school programs.
- One hundred fifty-two foresters in Khabarovski Krai and representatives from the four other project regions received training in communication and community participation skills and extension aids to use in their communities.
- The February 2002 follow-up survey in Khabarovski Krai found that 12% of respondents in Khabarovsk and 18% in Komsomolsk had made at least one change in behavior during the past year to be safer about forest fires.

Pest Monitoring and Management

- An economic study of monitoring the Siberian moth in Siberia shows pheromone trapping to be economically efficient. A combination of trapping moths and collecting larvae will probably be most effective in predicting outbreaks.
- FOREST's introduction of manufacturing of pheromone traps in Russia and the use of new pheromone dispensers for pheromone traps resulted in cost savings.
- Maps of Central Siberia showing territories subjected to Siberian moth outbreaks have reduced the areas that need monitoring by five times and associated pheromone monitoring costs by roughly the same amount.

- Maps showing habitat quality for the Siberian moth in three leskhozes have further reduced areas needing to be monitored by 80 percent and have reduced costs of monitoring Siberian moth in these areas with pheromone traps by about the same amount.
- Maps developed for Yenisey Siberia highlight areas where Siberian moth outbreaks could be a major problem and where monitoring should be continued.
- FOREST introduced the pest monitoring approach to all five regions during Year Two.
- A new database on the Pest Monitoring Website provides an opportunity for scientists and managers to review all field data.

Non-Timber Forest Products and Secondary Wood Processing (NTFP/SWP)

- Five Associations were strengthened including one founded by FOREST
- Strategic plans were developed for three associations
- Collectively, associations increased their membership by 56 companies, and increased income by 866,000 Rubles
- Thirty-two Businesses received support from FOREST
- Twenty-eight people were sent to two trade shows—two SWP companies purchased American equipment and three NTFP companies signed contracts to sell their products in Asia.
- Twelve companies increased their performance.
- Market studies for secondary wood processing were completed and provide key information on markets for companies.
- A Secondary Wood Processing Working Group and Non-Timber Forest Products Working Group were formed.

Biomass

- FOREST provided technical and financial support to three companies – Terneyles (Primorski Krai), Yeniseyles (Krasnoyarski Krai), and Igirma-Tairiku (Irkutskaya Oblast) – in developing investment plans (incorporating both feasibility studies and business plans) for the construction of biomass energy facilities.
- Financial institutions learned and became interested to support the construction of biomass energy facilities. The biomass staff facilitated dialogue between companies and potential investors.
- Biomass staff created a Working Group with representatives from the administration, industry, and financial sectors to promote the use of biomass energy.
- FOREST selected two more companies – Yartsevo Lespromkhoz (Zotino-Krasnoyarski Krai) and Parusnovsky DOK (Parusnoye, Sakhalinskaya Oblast) – to develop additional investment plans for the construction of biomass facilities in the targeted regions.
- Workshop proceedings and a report on the potential market for biomass energy in the Russia Far East and Siberia were compiled for dissemination.

II. Project Administration

Logistics/Staffing

FOREST became fully staffed during Year Two with three offices fully operational. The Deputy Project Manager, Alexander Zabelin, resigned and was replaced by Evgeny Kuzmichev. Chief Accountant Natasha Marchenko resigned and was replace by Katya Mironova. The office in

Sakhalin was opened in October with key staff hired, including Office Director Vitalina Khristoradova. Staff for the grants and NTFP/SWP components were also hired.

In addition to training in the offices, Contracts Manager Luda Khorobrykh and Grants Manager Alexei Erokhin were trained in their respective fields at Winrock's Headquarters and Katya Mironova and Nina Danilyuk were trained in USAID procedures in Arlington Virginia.

Winrock's Chief Financial Officer, Glenda Schmidt, Senior Director Corporate Contracts and Procurement, Ron Hubbard and Project Accountant Aileen Cabrera visited FOREST Project offices. Winrock's Director of Forestry and Natural Resource Management, Dr. Katherine Warner, and FOREST Project Coordinator Erin Hughes attended both Advisory Council meetings and worked with staff in the office.

Advisory Council

Two Advisory Council Meetings were conducted during Year Two. A meeting was conducted in Moscow in December to review mid-year accomplishments. A second meeting was held in June in Sakhalin to approve the Year Two workplan. Two new members were added to the Advisory Council: Liz Mayhew of the United States Forest Service replaced former member Steve Bulkin and Vladimir Andreevich Zvantsev replaced Konstanin Ivanovich Raspopin. **Table 1** shows the Advisory Council Members and their participation in the Year Two meetings.

Table 1. FOREST Advisory Council Members

Attended December and June Meeting	
Gennady Aleksandrovich Chekurdaev, Deputy Head, Committee of Natural Resources, Sakhalinsk Oblast	Andrei Vitimovich Selikhovkin, Deputy Head of the Forest Academy, Saint Petersburg
Vladimir Nikolaevich Vekshin, Deputy Head, Natural Resources Committee, Head, State Forest Service, Krasnoyarski Krai	Alexander Borisovich Levintal, Acting First Deputy Governor, Minister, Ministry of Economic Development and Foreign Relations, Khabarovski Krai
Carol Pierstorff, Chief, Environmental Division, Office of Business Development and Investment, USAID/Russia	Alexander Mikhailovich Kotelnikov, Deputy Head, Department of Forest Industry Complex, Sakhalin Oblast Administration
Lyudmila Vikhrova, Environmental Division, USAID/Russia	Craig VanDevelde, FOREST Project Manager, Khabarovsk
	Liz Mayhew, Program Coordinator, US Forest Service
Attended December Meeting Only	
Vladimir Mikhailovich Kolomytsev, Head, Department of Natural Resources, Khabarovski Krai	Alexander Nikolayevich Kulikov, Chairman, The Wildlife Foundation, Khabarovsk
Andrey Kushlin, Senior Forestry Specialist, World Bank, ECSSD, Washington, DC, US	Sergey Evgenievich Pstyga, Head, Department of Forest Resources, Primorski Krai
Sergei Mikhailov, Deputy Head of the Department for State Energy Supervision and Energy Conservation, Ministry of Energy, Moscow	Yuri Kukuev, First Deputy Minister, Ministry of Natural Resources
Not Present at Year Two Advisory Council Meetings	
Natalya Leonidovna Velikodnaya, Chief Editor, NTV Channel Ecological TV Program, Moscow	Vladimir Fyodorovich Chekhov, Deputy Chairperson, Committee of Natural Resources, Irkutskaya Oblast
Valeriy Pavlovich Roschupkin, First Deputy Minister, Ministry of Natural Resources, Moscow	Nickolai Alexeevich Andreev, Head, Department of Forest Management and Reforestation, Ministry of Natural Resources, Moscow
Vladimir Andreevich Zvantsev, Deputy Governor on Natural Resources, Head of the Main Department on Natural Resources, Krasnoyarski Krai	Vitaliy Ivanovich Solodun, Acting Deputy Head, Committee of Forest Resources, Acting Head, State Forest Service, Primorski Krai

III. Overall Project

USAID's FOREST Project was represented at several press conferences and meetings. In April, a press conference was held in Khabarovsk focusing on general project activities. The BBC interviewed FOREST Project staff members Craig VanDevelde and Evgeny Kuzmichev on NTFP issues facing the Russia Far East. USAID officials George Deikun, Deputy Director of USAID-Moscow, and Gary Juste, USAID/Russia Contracts Officer for the FOREST Project, visited the project office in Khabarovsk and met with the FOREST Project Partners.

In addition to regular meetings with krai/oblast officials in the five project regions, FOREST Project staff attended and/or presented information about the project at the Ad Hoc Working Group Meeting in Ulan-Ude, the Regional Initiative Roundtable in Khabaorvsk, and a Fire Prevention Seminar in Krasnoyarsk.

Collaboration with other projects and activities were initiated with meetings with IUCN, Ministry of Natural Resources, World Bank, ROLL Project Staff, and McGregor Model Forest Project.

The project's website was completed and a database was developed to track consultants. FOREST is using high-speed internet connection to video conference with staff in the United States at significant cost savings.

A manual was drafted on impact monitoring and evaluation which guides the staff on collecting, analyzing, and writing about project results.

IV. Four Technical Components

A. Component 1 – Fire Prevention

1. Highlighted Activities, Results, and Findings

The FOREST Project is working to change the behaviors of people in the Russia Far East and Siberia to reduce the incidence of human-caused forest fires through a combination of general awareness, targeted training, and behavioral change programs. FOREST works as a catalyst and facilitator to mobilize as many influential and interested groups as possible. Table 3 shows component results as per USAID's Strategic Objectives.

During Year Two, FOREST created many programs and materials that provide a solid foundation to expand forest fire prevention and education communication in the future.

Planned targets were achieved in each task during Year Two, and in many cases the number of activities and deliverables were exceeded. Activities were participatory with our partners actively involved in each step. FOREST successfully carried out four core education/communication tasks: general awareness, foresters, school-aged children, and targeted groups in Khabarovski Krai. Communication activities also began in Krasnoyarski Krai and Sakhalinskaya Oblast, exceeding the original plan for Year Two.

FOREST established methods to gather and analyze data from Khabarovski Krai on the number of forest fires and their causes. Data is also being collected on daily fire weather classification, which indicates how weather affects the number of forest fires. Key data for 2001 is shown in Tables 2 and 3. Data from 2001, the first full fire season for the FOREST Project, will be used as the baseline for future analyses.

Table 2: Number of Forest Fires

Fire Season	Total # Fires	# Human Caused	% Human Caused
2001	852	704	82.6%

NOTE: Human-caused forest fires include all categories other than lightning-caused fires.

Table 3: Fire Weather Classification

Index Level	Fire Danger	# Days 2001 Fire Season	% For 2001 Fire Season
5	Extreme	10	5%
4	High	25	14%
3	Moderate	58	31%
1 & 2	Low	94	50%
TOTAL		187	100%

NOTE: Level 5 represents the highest fire ignition danger as well as the danger for difficult to control fires. Although fires occur during periods with index levels of 1 and 2, these fires generally are easier to contain.

While safe forest behavior and a resulting reduction of forest fires is the ultimate test, predictor indicators monitor intermediate steps, including that audiences are **aware** of campaign messages, that they have increased their **knowledge** of such messages, and that their **attitudes** and **behaviors** or intended behaviors have become safer as a result. Therefore, FOREST is monitoring a number of indicators which predict future success in changing behaviors.

Awareness/Knowledge Levels. The first stage in behavioral change is awareness and gaining knowledge of a practice:

- 88% of 656 randomly sampled people in the general awareness campaign target areas had heard/seen and recognized the FOREST Project's message "8 out of 10 forest fires are caused by people." This year was the first time that this message had been used in the Russia.
- 92% of the same respondents reported hearing or seeing the forest fire danger level warnings broadcast on TV and radio as a result of project activity.
- In Khabarovsk City, the percentage of people reporting they pay attention to TV for forest fire information has increased during the year from 28% to 51%; from 10 to 22% for newspapers; from 14% to 36% for friends; and from 32% to 44% for radio.
- More than half of respondents surveyed in Khabarovsk and Komsomolsk said they pay attention to forest fire messages in the mass media and have learned behaviors that help them become safer in the forest.
- More than one-third of the respondents said they could remember seeing a specific TV public service announcement showing a beautiful forest followed by a burning forest with the project message "8 out of 10 forest fires are caused by people." (One third of the population of these areas would be 331,000 people).

This logo was designed and tested in Khabarovski Krai. During the coming year it will be tested in Krasnoyarski Krai and Sakhalinskaya Oblast.

Participation in Fire Prevention Education/Communication. The basic approach is to involve as many influential groups as possible—forest services, mass media, schools, extra-curricular school organizations, NGOs, associations, private sector organizations, community leaders, and others—to serve as communicators and promoters of forest fire prevention:

- More than 750 individuals/groups are participating in the Fire Prevention Contact Group and are receiving information and, in some cases, special training. The target was 200.
- More than 200 educators are trained and implementing the fire prevention awareness program for school-aged children. The target was 15 teachers.
- Initial survey results show approximately 7,500 students in Khabarovsk Krai are participating in FOREST's *Fire Prevention Educational Curriculum*. The target was 29 students. In addition, these students have created fire prevention informational stands and displayed them

in public areas such as bazaars, schools, businesses, and administration buildings, reaching a potential audience of more than 75,000 people.
- The Khabarovski Krai Ministry of Education provided an endorsement letter for FOREST's school and extra-curricular school programs.
- 152 foresters in Khabarovski Krai received training in communication and community participation skills and extension aids to use in their communities. The target was 120 foresters.
- Working with the FOREST Grants Program, construction of two rest areas is underway and three more grants have been awarded. The target was one rest area.

Exposure. FOREST aims to get fire prevention messages to as many people as possible, exposing them to the problem of human-caused fires and providing them with solutions:
- A media monitoring program was established late in the fire season. Findings from September 17 and October 25, 2001 indicate that the Khabarovsk DVTRK TV station broadcasted 277 public service programs/spots related to forest fire prevention (including the fire danger index) with a total estimated viewer exposure of 159,400,000 people and an air time value of 1,909,350 RUR.
- A teachers' guide with a visual aid flip chart was produced and 5,000 copies were printed; 1,200 have been distributed this year to teachers, libraries, museums, extra-curricular programs, universities, junior forest ranger leaders, and foresters.
- A foresters' communication manual was developed with 250 copies produced and 175 copies distributed to foresters and libraries.

Behavioral Change. Respondents in the February 2002 follow-up survey were asked: "In the past year, have you personally changed your behavior in the forests of this region to be safer about forest fires?" It was not expected that many people would indicate that they have changed behaviors since the campaign at this point has not emphasized specific behavioral changes that are needed. Results show that 12% of respondents in Khabarovsk and 18% in Komsomolsk say they have made at least one change in behavior in the past year to be safer about forest fires.

Table 4. Fire Prevention Results as per USAID/Russia's Strategic Objectives

SO 1.6 Environmental Resources Managed More Efficiently to Support Economic Growth		
IR5	*Year 2 Total*	*Comments*
(1) Environmental Education Programs Implemented by NGOs	1	Fire Awareness Campaign is implemented by partnering NGOs
(2) NGO adopting citizen advocacy programs	15	More than 15 NGOs are involved in the fire prevention campaign, encouraging people not to start fires.
S.O. 1.3 Small and Medium Sized Enterprise Sector Strengthened and Expanded		
IR 4	*Year 2 Total*	*Comments*
(1) Young people participated in extracurricular programs on civics	7500	FOREST is engaging young people to be involved in extracurricular environmental activities to improve the environment.

2. Summary of Fire Prevention Tasks

Task	Location	Status/Results
i. Implement General Awareness Campaigns	Khabarovsk Krasnoyarsk Sakhalin	*High public recognition from general awareness campaigns in three krais/oblasts *Excellent participation by mass media, community groups, NGOs, and other groups *6 billboards installed (2 each in three krais/oblasts)
ii. Strengthen Foresters' Communication /Community Participation Skills	Khabarovsk	*152 foresters trained and given field practice in communication and community participation skills *Extension aids provided to the foresters *Participatory training approach adopted by forester training center
iii. Work with School Aged Students	Khabarovsk	*200 teachers trained and participating in program *700 Junior Forest Rangers in training (target was 50) *6,800 other students participating in training *Teachers manual with 20 lessons and separate flip chart produced and distributed to participating teachers *100 information stands produced and displayed in public areas
iv. Campaign towards Special Target Groups	Khabarovsk	*Three campaigns contracted to local groups/NGOs targeting (1) picnickers/owners of dachas and (2) hunters & fishermen
v. Public Opinion Polling/ Audience Research	Khabarovsk Sakhalin Krasnoyarsk	*Follow up KAP study in Khabarovski Krai showed excellent progress in general awareness & some behavioral change beginning *Baseline KAP studies in Krasnoyarsk and Sakhalin *4 focus group studies for designing targeted campaign *4 focus groups to pre-test logos, slogans, posters, etc.
vi. Produce & Distribute Fact/Tip Sheets	Khabarovsk	*12,000 copies of 6 fact sheets distributed to Contact Group *301,000 copies of 5 tip sheets distributed to Contact Group *Information assembled in teacher guide and forester handbook which will be converted to fact/tip sheets in future years
vii. Forest Fire Monitoring	Khabarovsk	*Reports released on 1995-2000 fire data *Reports released on 2001 fire data
viii. Expand and Use Contact Group	All participating krais/oblasts	*750 individuals/groups in Contact Group *Newsletters, fact sheets, tip sheets, and other materials distributed to Contact Group
ix. Develop Forest Rest Areas	Khabarovsk Krasnoyarsk Sakhalin	*Helped process grants for 3 rest areas in Khabarovski Krai, 1 in Krasnoyarski Krai and 1 in Sakhalinskaya Oblast and provided technical guidance to their implementation
x. Formulate a Sustainability Plan	Khabarovsk	*A plan has been prepared on identifying resource centers to disseminate forest fire prevention materials and programs in the future

3. Key Deliverables

- Fire weather classification information provided to TV and radio stations and newspapers
- 2 TV spots developed and used by 6 stations in 2 krais/oblasts
- 6 radio spots developed and aired

- 5 community events arranged
- 2 sets of bear and tiger costumes made and loaned to community groups
- 692 participant training days for 152 foresters
- Follow-up Khabarovski Krai KAP study completed and full report, summary report, and fact sheet developed
- Baseline KAP studies completed in Krasnoyarski Krai and Sakhalinskaya Oblast and full report, summary, and fact sheets developed
- Full report and fact sheets on 1995-2000 and 2001 fire data
- 5 grants for rest areas (provided assistance to grant program in screening applications and monitoring implementation)

Additional deliverables are listed in the table above.

4. Level of Effort

Approximately 92 months were spent on forest fire prevention education and communication activities during Year Two.

B. Component 2 – Pest Monitoring

1. Highlighted Activities, Results, and Findings

The FOREST Project focused on spreading the pheromone monitoring methodology to all five regions and Tomskaya Oblast, building capacity, and informing scientists and decision makers about the methodology during Year Two. Table 5 shows the results as per USAID's Strategic Objectives.

Regional Centers for Forest Protection played an integral role in pheromone trap placement and analysis. One hundred twenty forest protection specialists were trained in using hand-held GPS units and in preparation of pheromone traps for monitoring. All fieldwork is being carried out in all regions in Siberia and the Russia Far East by Russian cooperators and partners from the Russian Forest Service. Centers for Forest Protection in Krasnoyarski Krai and Irkutskaya Oblast have placed traps for two seasons already.

Two seminars took place in November 2001 in Krasnoyarsk (*Recent methods of forest pests monitoring*) and in April 2002 in Khabarovsk (*Siberian moth monitoring in the Russia Far East*) to share information with the scientific community about FOREST's approach. The five regional Centers of Forest Protection and four research/teaching institutes were represented by 120 participants. All participants are involved in forest protection activities in regions covered by the FOREST Pest Monitoring Component. Seminar proceedings on the methods of monitoring of forest pests in Siberia and the Far East was written and published.

During Year Two, FOREST contracted a women-owned company to produce 4,500 pheromone traps, the first time these have been produced in Russia. The business earned $2,000 in revenues. In addition, Russian-made pheromone dispensers were tested and proven to be effective. FOREST is realizing additional cost savings while building capacity to produce locally made materials.

Fact sheets of the goals and tasks of forest protection activities were developed and were distributed to all leskhozes in Krasnoyarski Krai.

Three Maps--(1) Siberian moth outbreak in Yenisey Siberia (2) Irkutskaya Oblast and Yenisey Siberia risk of forest pests defoliation and (3) Habitat quality for the Siberian moth in two leskhozes of the Lower Angara region--were published and distributed.

An economic analysis showed that using pheromone traps will reduce costs of monitoring and increase efficiency. This new methodology is effective by itself but will be even more effective when used in conjunction with sampling of larvae used by the Centers of Forest Protection.

Geostatistical analysis of trap captures was used for the first time in Russia. This analysis allows scientists to develop maps that show annual changes graphically in insect pest population density in the areas where traps are placed.

Sakhalin was added to the areas for Pest Monitoring under the FOREST Project in June 2002. Yuri Baranchikov, Yuri Genenko, and Lubov' Matusevich traveled to Sakhalin where they studied the forest pest situation and placed pheromone traps for the Siberian moth in several leskhozes. FOREST supported Dr. Matusevich's travel where she learned of insect and disease problems of which she was not aware. Consequently, a Ministry expedition will be scheduled to visit this area in the coming year and provide the first assessment of insect and disease conditions on Sakhalin in ten years.

In summer 2002 pheromone traps have been placed for the first time in Khabarovski (100 plots) and Primorski (250 plots) Krais, and Tomskaya Oblast (100 plots).

A methodology to predict Black fir sawyer beetle dispersal and subsequent injury to fir forests damaged by the Siberian moth was developed for the Usinkiy leskhoz in Krasnoyarski Krai. The working group was actively involved in reviewing tasks and activities planned for Year Three.

During Year One, traps were placed in predetermined positions about 15-20 kilometers apart. In many instances this involved placing the traps far off the road network and was slow, difficult, and costly for fuel and labor. As an unexpected outcome of this work, we found that traps baited with 1,000 mg of pheromone, regardless of where they were placed, caught about the same number of moths. This meant that traps did not have to be placed in specific locations and, in fact, could be placed along existing roads thereby savings thousands of dollars in fuel and labor costs while still getting the same results.

Using GIS overlays (of tree species, previous year outbreaks, altitude etc) of Yenisey Siberia maps produced in Year One, the Pest Monitoring Team learned that the total area in Siberia threatened by Siberian moth is only about 27% of the total forested area. The reduction in area is based on our knowledge of the moth's biology and constraints on where it can exist because of altitudinal, latitudinal, or tree species limitations. The net result is that the susceptible area can be monitored with pheromone traps for a fraction of the cost of trying to monitor the entire forested area. This makes the pheromone monitoring system much more feasible and more economically sustainable. In Year Two, a similar map was prepared for Irkutskaya Oblast. This is the first time this approach was used and it can be adapted to monitor other pests as well.

During Year One, the habitat quality in Bolshaya Murta leskhoz in Krasnoyarski Krai was evaluated and found that it was possible to classify Siberian moth habitat into high, medium, and low quality habitats. Sampling of larvae showed good correlation with habitat quality and, as might be expected, high quality habitat produced the most larvae. In Year Two we validated Year One results in two different leskhozes. In the previous target we showed how mapping of host types could reduce the total area needing to be monitored. Here, we have shown how that reduced area can be still further reduced by limiting areas being trapped to only high quality habitats and thereby providing even greater cost savings from this technology.

The GIS map provided the base map over which we superimposed a number of theme layers that represented constraints among which was altitude. The addition of these layers allowed us to determine the actual range used by the moth (27% of total potential range represented by geographical distribution of host species of trees).

Though a concern, few traps were lost or removed or vandalized showing the public awareness campaign seems to be helping.

Table 5. Pest Monitoring Results as per USAID's Strategic Objectives

SO 1.6 Environmental Resources Managed More Efficiently to Support Economic Growth		
IR 1	*Year Two Total*	*Comments*
(3) Businesses showing improved performance	2	one women owned business
IR 4		
(2) Hectares monitored	32,000	
(3) Regions adopting NRM practices	6	

2. Summary of Pest Monitoring Tasks

Task	**Location**	**Status/Results**
i. Planning, Coordination, and Reporting	Krasnoyarsk, Khabarovsk and in U.S.	Working Group meetings were held in Krasnoyarsk in December 2001 and Khabarovsk in April 2002. A second training session was held in April in Khabarovsk. Coordinators participated in the AC meetings in Moscow in December 2001 and in June in Sakhalin where the Workplan for Year 3 was approved.
ii. Public Awareness	Institute of Forest and Centers of Forest Protection	Numerous presentations and several publications have been prepared. Ten posters prepared and are being distributed; two seminars held and proceedings are being prepared.
iii. Delineate Regions of Siberian Forests	Krasnoyarski Krai, Khakassia, Tuva, Irkutskaya and Tomskaya Oblasts	Maps of Yenisey Siberia and Irkutskaya Oblast were produced showing areas of potential risk of defoliation by complexes of forest insect pests.

iv. Identify Habitat Quality	Krasnoyarski Krai	A map of habitat quality for 3 leskhozes in Krasnoyarski Krai were produced
v. Compare Larval Density and Moth Captures by Traps with Different Pheromone Concentrations	Krasnoyarski Krai, Irkutskaya Oblast, Primorski and Khabarovski Krais	Reports describing the numerical relationship between moth counts and habitat quality will be provided.
vi. Siberian Moth Population Monitoring in Different Regions of RFE	Sakhalin, Khabarovski Krai and Primorski Krai	Data on the numerical relationship between moth and larval counts in each area will be provided.
vii. Pheromone Monitoring Siberian Moth and Gypsy Moth in Area with Continuous Trap Distribution	Krasnoyarski Krai, Khakassia	A report on moth captures for both species will be provided.
viii. Data Analysis and Decision Support System	Krasnoyarsk, Moscow	Maps of moth counts in traps and maps of potential outbreaks of Siberian moth and gypsy moth will be provided (when at least 2 years of data are available).
ix. Refine and Maintain Website	Krasnoyarsk	Installation of database completed; website more user-friendly and informative
x. Remote Monitoring and Prognosis of Black Fir Sawyer Beetle	Krasnoyarski Krai	Map showing area of infestation and dispersal of beetles into uninfected trees.
xi. Interregional Seminar on Forest Pest Monitoring	Krasnoyarsk and other locations	Proceedings of seminars will be edited and published.

3. Deliverables

- Maps of Irkutskaya Oblast and Yenisey Siberia were produced showing different areas subject to risk of outbreaks by the major forest insect pest species in these areas.
- A report on the economics of monitoring for Siberian moth in Krasnoyarski Krai and Irkutskaya Oblast was presented and is currently being edited for publication.
- A habitat quality map was developed for Yeniseiski and Motyginski leskhozes of Krasnoyarski Krai, showing three levels of habitat quality for the Siberian moth and delineating exact areas for the most efficient monitoring of this species.
- The database for Component 2 was developed and is now being installed on the C2 website. Plans are being developed for transfer of the database to the Moscow Center for Forest Protection in Pushkino. Through this action, the Ministry of Natural Resources is demonstrating a strong desire for ownership and sustainability of this technology.
- The map "Regions of outbreaks of the Siberian moth in Yenisey Siberia" was presented to 56 leskhozes in Krasnoyarski Krai, 11 leskhozes in Khakassia, and to 10 leskhozes in the Republic of Tuva. The maps will provide considerable assistance to the leskhozes by enabling them to know where outbreaks have occurred previously and to give greater attention to monitoring of Siberian moth in those areas.

4. Level of Effort

Approximately 34 months were spent on the Pest Monitoring Component during Year Two.

C. Component 3: Non-Timber Forest Products and Secondary Wood Processing

1. Highlighted Activities, Results, and Findings

FOREST supports associations and their member companies to increase value-added processing of non-timber and secondary wood products. During Year Two, FOREST expanded its support to partner associations and their member companies, organized successful trips to international trade shows, completed domestic and international market studies, and organized Secondary Wood Processing and Non-Timber Forest Products Working Groups. Assistance to forest products associations and companies builds on the realization that sustainable forest management, improved efficiency in resource utilization, and increased value-added processing are mutually complementary, thus advancing USAID/Russia's strategic objective for more effective management of environmental resources. Efforts to strengthen business associations by making them financially viable and more effective representatives for their members' interests in the political sphere promotes USAID strategic objectives in the area of civil society development and responsive local governance. Table 7 show results as per USAID's Strategic Objectives.

During Year Two, FOREST helped five associations increase their capacity and membership. Collectively, the associations represent 172 members, including four women in the Krasnoyarski Krai, Irkutskaya Oblast, Far East, and Sakhalinskaya Oblast. Three new partners were selected. FOREST supported associations by surveying their members, developing directories and websites, training them in association management and strategic planning, and facilitating their annual meetings. As a result, the associations have attracted 56 new members and are earning more income from member dues (see Table 3).

A financial database (located on the Project website: www.forestproject.ru) was developed to provide information to the FOREST sector companies about finance opportunities.

The Sakhalin Association of Forest Products Producers, a new association representing 32 secondary wood products and NTFP companies, was formed as a result of a FOREST Project-organized workshop in Yuzhno-Sakhalinsk. The workshop invited companies in the forest sector to come together to identify common problems they face. The companies decided to come together to form an association. Some of the key concerns are representation and advocacy of members' interests to the government and legislature, provision of qualified services, and establishment of a market for value-added forest products on Sakhalin Island.

During Year Two, FOREST Project staff met with 32 member companies to identify assistance needs. Eighteen companies received technical assistance through the volunteers and consultants (including two women-owned companies). As of Year Two 12 companies have improved performance. Some of the results include the following:

Region 7, an NTFP association, concluded that they could produce medicinal products cheaper than their Moscow competitors. FOREST helped the association to develop, test, and certify 10 new products including Siberian Ginseng, magnolia vine tree, milfoil herb, and St. John's Wort for their member company Vostokbioproduct. By May, preliminary tests were completed and

Table 6. Support to Associations and Impact

Association Name	Members		Income and % Increased	Website	Other Support
	New	total			
Far Eastern SWP Association	29	47	713,000 RUR 20%	www.dod.khv.ru	Database, Directory, Training, 1&5 Year Strategic Plan, Grant, Annual meeting
Krasnoyarsk NTFP Association	7	22	unknown	www.krasntfp.ru	Database, Directory, Training, 1&5 Year Strategic Plan Annual meeting
Sakhalin Forest Producers Association	10	43	125,000 RUR 100%	www.sfpa.ru	Directory, Training, 1&5 Year Strategic Plan Annual meeting
Region 7 Association		12	unknown	In process	Directory, Training, 1&5 year Strategic Plan, Grant
Far Eastern NTFP Association	13	43	28,000 RUR	www.ntfp.ru	Database, Directory, Training, 1&5 Year Strategic Plan, Annual meeting
Total	59	172	866,00 RUR		

the first sample products were manufactured. The required documentation and test results have been submitted to the Ministry of Health for certification.

Voyage LLC, a Khabarovsk-based wood processing company, began edge-glued panel production for export to Asia as a result of assistance from two FOREST Project volunteers. Voyage's owner has submitted his business plan for consideration by two banks, and in the meantime has invested his own capital in setting up a new production site and purchasing a sawmill and dry kilns. He plans to attend and purchase additional equipment at a September trade show in Moscow. He anticipates $10,000 monthly profit from milling and drying of lumber and will expand further into panels production.

The Far Eastern SWP Association jointly wrote a petition to the local and federal administrations proposing that the Government differentiate export tariffs based on degree of secondary processing This was a result of two-day workshop o policy and legislative advocacy, government relations, and how to participate in policy development and decision-making processes that affect the forest products sector in the RFE and Siberia. Thirty people attended, including association representatives from Khabarovsk, Krasnoyarsk, and Sakhalin. The workshop included a presentation on policy advocacy by the American Forest and Paper Association. A summary of advocacy methods was sent to FOREST Project partner associations.

Ecovit LLC, a Krasnoyarsk NTFP Association member found a prospective U.S. buyer for essential oils and a contract is being negotiated. In addition, the company's domestic sales increased after articles were published on the benefits of the oils. A volunteer consultant made the U.S. contacts and encouraged press releases on the products.

Five members of the Sakhalin Forest Products Processors' Association improved the quality and value of their end product and reduced wood waste, as a result of a week-long, hands-on training in saw maintenance at the Khor sawmill in Khabarovski krai. Participants learned about filing and maintaining band, circular, and gang saws.

An agreement to export $50,000 per month of *Inonotus obliquus* (fungus to produce an anti-cancer medicine; in use in Japan and South Korea) to Korea was signed during the Hong Kong EXPO Asia 2002. FOREST sent a delegation of 15 people to the Natural Food Products trade show. In addition, a company from Krasnoyarsk signed of a letter of intent to export essential oils, and established an NTFP joint venture with a Chinese company for NTFP development in Krasnoyarski Krai. The Russian delegation also learned about Asian market niches for essential oils and cosmetics ingredients, and the Russian companies established strong inter-regional linkages between the Khabarovsk, Vladivostok, Sakhalin, and Krasnoyarsk companies, who discussed starting a brand name trade and product exchange between their three associations.

Nord Union LLC (a Sakhalin company) purchased equipment to improve milling and reduce waste while visiting Northwest Expo, a wood products trade show in Seattle, Washington, and spent four days visiting local sawmill, wood processing, and commercial lumberyards. Nord Union learned about drying requirements to export to the U.S. and is now seeking FOREST's help in selecting kilns.

Two grants of $30,000 each were awarded to establish Resource Information Centers in Krasnoyarski and Khabarovski krai. The centers will serve the NTFP and SWP industrial sectors as a source of technical and market information and will be operational by the end of 2002. The Resource Center in Krasnoyarsk has conducted one training on GIS and plans to offer training courses as a way to become financially sustainable.

The seven-member SWP Working Group had its first meeting in November 2001 in Khabarovsk. The NTFP Working Group, composed of 13 members representing the NTFP sector in Krasnoyarski, Khabarovski, and Primorski krai and Sakhalinskaya oblast, held its first meeting in March in Khabarovsk. The Group includes participants from government, NTFP enterprises and associations, the academic sciences and research community, the forest industry, and the business community.

Table 7. NTFP SWP Results as per USAID/Russia's Strategic Objectives

SO 1.6 Environmental Resources Managed More Efficiently to Support Economic Growth		
IR1	*Year 2 Total*	*Comments*
Business Associations Strengthened	5	FOREST has five partner-associations.
Businesses Participating in Associations	172	59 New Members because of FOREST.
Businesses showing improved performance	13	Based on information collected to date.
SO 2.1 A More Open, Participatory Society		
IR2	*Year 2 Total*	*Comments*
Advocacy Campaign Conducted	1	One association sent a letter to the local and federal level government.

2. Summary of NTFP/SWP Tasks

Task	Location	Status/Results
i. Select Associations to Work with in Year Two	Khabarovsk, Sakhalin	Three Associations supported, one founded by FOREST Project
ii. Update Directories and Database of Associations Members	Khabarovsk, Sakhalin, Krasnoyarsk	Websites developed (www.dod.khv.ru www.sfpa.ru www.ntfp.ru and www.krasntfp.ru), databases and surveys completed for four associations
iii. Facilitate Annual Association Meetings	Sakhalin, Khabarovsk, Krasnoyarsk	Four association annual meetings conducted
iv. Develop 1 and 5 year Association Strategic Plan	Sakhalin, Khabarovsk, Krasnoyarsk	Four Association Directors trained, four one- and five-year strategic plans developed
v. Association Twinning and Technology Exchange		Meeting planned during July to attend a association meeting to create twinning relations
vi. Support Associations	Sakhalin, Khabarovsk, Krasnoyarsk	Membership increased by 59, membership income increased by 866,000 Rubles, 116 people trained in various activities from Advocacy to Association Management
vii. Support Association Members	Sakhalin, Khabarovsk, Krasnoyarsk, Primorski	Thirty two companies (two women owned) received direct support, 12 companies increased performance
viii. Send Delegation to International Trade Show	Delegates from Khabarovsk, Krasnoyarsk, Sakhalin, Primorski	Fifteen people sent to NTFP show in Hong Kong, three contracts signed. Thirteen people sent to Seattle trade show, two companies purchased equipment
ix. Market Information Studies	All five areas	Five reports completed
x. Establish Information Center	Krasnoyarsk, Khabarovsk	Two Resource Centers started (one operational)
xi. Support Women and Minority Owned Businesses		Terms of reference developed, searches for consultants conducted

3. Key Deliverables

- Directories, Databases, and Information on Associations' Members
- Websites for Associations
- Russian Market Study on Secondary Wood Products in Siberia
- Russian Market Study on Secondary Wood Products in Russian Far East
- Russian Market Study on NTFP in Siberia
- Russian Market Study on NFTP in Russian Far East
- Assessment of NTFP in Siberia and Sakhalin
- Asia Market Analysis for Russian Secondary Wood Products
- Database on Finance Options (accessible on the website or CD Rom)

- Strategic plans for Sakhalin Forest Products Processors Association and Russia Far East NFTP Association and Krasnoyarsk NTFP Associations

4. Level of Effort

During Year Two, approximately 75 months were spent on non-timber forest products and secondary wood processing activities.

D. Component 4 – Renewable Energy Alternatives/Biomass

1. Highlighted Activities, Results, and Findings

FOREST is increasing the interest and awareness of biomass as a cost efficient and environmentally sound energy source. The market assessment report of Year One concluded that biomass energy is a viable alternative in the Russia Far East and Siberia. Significant wastes exist in each of the five project regions and investment in biomass energy facilities can yield attractive financial and economic returns.

In November, three companies—Terneyles, Yeniseyles, and Igirma-Tairiku—expressed interested in receiving FOREST help to develop investment plans to construct biomass facilities plans during a workshop in Khabarovsk. Three plans were developed and in May the plans were shared with Russian investors.

Three banks were so impressed with the investment plans that they offered Terneyles loans or corporate bonds at rates better than current market terms.

The workshops have increased other companies and municipalities' interest in biomass. Two other companies, Yartsevo Lespromkhoz (Zotino-Krasnoyarsk krai) and Parusnovsky DOK (Parusnoye, Sakhalin oblast), have been identified to receive assistance in developing investment plans. A local municipality has requested technical assistance to explore biomass energy for off grid communities.

Terneyles produces about 115 thousand m^3 of wood wastes/year at several different processing sites, of which only about 45 thousand m^3 (39%) are currently utilized as fuel. The company spends over 7 million rubles each year burying 70,000 m^3 of unutilized wood wastes in a landfill. Wood wastes, such as bark, sawdust, and shavings, are the products of debarking, wood sawing, and the manufacture of semi-finished products. FOREST is assisting Terneyles and it's design firm Turboblock, with the design of fuel handling and combustion systems capable of storing and feeding the variety of fine sawdust, bark, and dry fuels. Electricity produced from wood wastes is to be consumed by the five facilities in Plastun operated by Terneyles with surplus power sold to the grid. The new power plant will also supply heat to the Plastun settlement district heating system, benefiting approximately 6,500 people.

The work completed in Year Two identified entrepreneurial first-tier companies[1] interested to move forward in promoting wood waste utilization, heat and power production for timber companies and settlements, and the substitution of oil and diesel fuel. The investment plans prepared by first-tier companies are leading to construction of biomass energy facilities that can be used as models by second- and third-tier companies showing how to use wood waste resources more efficiently in Siberia and the Russian Far East.

[1] First tier companies are those that show the highest level of interest in biomass coupled with financial and technical resources and ability to construct biomass facilities.

By developing projects in partnership with companies and their design firms, FOREST is developing expertise in the region that can be used to develop additional biomass energy projects after the project ends.

During Year Two, FOREST brought key representatives from companies and investors (both local and international) together to discuss requirements for financing construction of biomass energy facilities. The meeting demonstrated that several investors, such as Vneshtorgbank in Khabarovsk and the Bank of Moscow, are very much interested in providing loans to sound projects. Table 8 show results as per USAID's Strategic Objectives.

Table 8. Biomass Energy Results as per USAID/Russia's Strategic Objectives

SO 1.6 Environmental Resources Managed More Efficiently to Support Economic Growth		
IR 2	*Year Two Total*	*Comments*
(2) businesses showing improved environmental practices	3 have business plans	plans prepared but not implemented yet

2. Summary of Biomass Energy Tasks

Task	**Location**	**Status/Results**
i. Compiled market assessment report on biomass energy in Siberia and the Russia Far East	Krasnoyarsk, Khabarovsk and Primorski krais, Irkutskaya and Sakhalinskaya oblasts	Proceedings are ready for publication
ii. Hosted workshop on the potential market for biomass energy in Siberia and the Far East, inviting forest industry leaders, key experts, and regional authorities in the FOREST Project regions	Khabarovsk krai	Proceedings are ready for publication and waiting for USAID approval Eight "second-tier" companies expressed interest in constructing biomass energy facilities
iii. Selected first tier companies interested in constructing biomass energy facilities	Krasnoyarski and Primorski krais, Irkutskaya Oblast	Three companies – Terneyles, Yeniseyles, and Igirma-Tairiku – selected to receive FOREST Project support for the development of investment plans for constructing biomass energy facilities
iv. Design companies selected to develop investment plans for first tier companies	Vladivostok, Irkutsk and St.-Petersburg	Agreements signed with design firms to receive grants to develop investment plans for first-tier companies.
v. Assisted first-tier companies in developing investment plans	Primorski and Krasnoyarski krais	Received investment plans for proposed construction sites
vi. Hosted financial workshop to attract potential investors and companies and to share "first tier" investment plans with interested companies	Vladivostok	Received letters from financial institutions expressing interest in financing the construction of biomass energy facilities.

vii. Selected second-tier companies interested in constructing biomass energy facilities	Krasnoyarski, Khabarovski krais, Irkutskaya and Sakhalinskaya oblasts	Two companies – Yartsevo and Parusnovsky – awarded FOREST grants to develop investment plans for constructing biomass energy facilities.
viii. Formed Working Group	Vladivostok	Representatives of companies, banks and administrations from four of the Project regions (excluding Sakhalin) accepted invitations to support the Component's activities.

3. Key Deliverables

- Workshop proceedings from the *Assessment of Biomass Energy Market Opportunities in Siberia and the Russian Far East* workshop on November 11-12, 2002, held in Khabarovsk.
- Three Investment Plans

4. Level of Effort

Approximately 50 months were spent on Biomass Energy tasks in Year Two.

V. Cross-Cutting Components

A. Forest Policy and Legal Reform

1. Highlighted Activities, Results, and Findings

The FOREST Project focuses on key policy issues as they relate to meeting the goals of the project. Regional policy and legal issues were examined in the Russia Far East, Krasnoyarski Krai, and Irkutskaya Oblast.

During Year Two, FOREST outlined a process for selecting forest policies and legislation with staff, government officials and other stakeholders. Staff conducted a seminar on the *Mechanisms of Forest Policy Implementation in the Russia Far East and Siberia.* More than 50 officials from the Ministry of Natural Resources, federal administrative and legislative institutions, scientists, and FOREST staff participated. Participants found the meeting to be particularly useful. Issues discussed included the need to:

- Review the management fire fighting services, fire prevention, and pest control; describe the rights, duties, and responsibility of the forestry and administrative services.
- Analyze the need for sanctions for abusing forest lands, and describe principles and procedures to evaluate the scale of these sanctions.
- Analyze incentives, including lease extensions, for forest users introducing new technology and conducting environmental friendly and proper forest utilization.
- Determine the forms and methods of public participation in the decision making process and forestry management, describing the rights and responsibility of the citizens and NGOs participating in the administration.

FOREST proposed to adjust the approach and not conduct a gap analysis or develop a feedback mechanism as a single event (as described in the workplan) but rather as an on-going activity. In addition, future policy activities of FOREST will be conducted within each component.

2. Summary of Forest Policy and Legal Reform Tasks

Task	Location	Status/Results
i. Forest Policy and Legal Reform Analysis	Khabarovsk, Moscow	Forest Policy and Legal Reform Report
ii. Development of a Policy Feedback Mechanism		Not done

3. Key Deliverables

Forest Policy and Legal Reform Report

4. Level of Effort

Approximately 4 months were spent on Forest Policy and Legal Reform during Year Two.

B. Applied Forestry Research

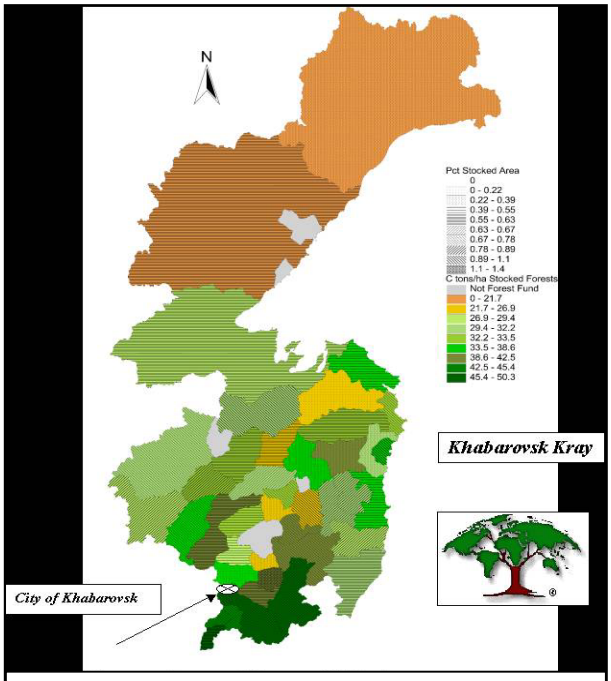
1. Highlighted Activities, Findings, and Results

The Applied Forestry Research Activity focuses on establishing baseline carbon data and baseline information for the four technical components. There were three main tasks for the carbon component this year: (1) collect remote sensing and forest inventory data for the pest target area in Krasnoyarski Krai and fire target area in Khabarovski Krai; (2) develop a carbon monitoring plan for the remainder of the FOREST Project, and (3) complete the digital forest vegetation/carbon maps of Khabarovski Krai and the pest component's target area near Krasnoyarsk.

The St. Petersburg Forest Ecological Center and the Far Eastern Forestry Research Center collected and summarized forest inventory data for Krasnoyarski Krai and Khabarovski Krai, respectively. The V.N. Sukachev Institute of Forest, with support from S. Cherkashin, developed a digital forest vegetation map of the pest target area near Krasnoyarsk. The Woods Hole Research Center submitted digital vegetation and carbon maps for Khabarovski Krai (see maps below) along with a report on the methodologies they used to develop the maps. These maps provide a fresh review of the vegetation of Khabarovski Krai and they capture the complexity of the land surface, the variability of its terrain, and forest fire impacts. The work may be improved by adding imagery data of higher resolution and other new data readily available each year. Still, these maps represent the best current understanding of the landcover of Khabarovski Krai.

Vlady Alexeyev, D. Efremov, and S. Cherkashin collected names of scientists to include in a carbon information network for the Russia Far East. This network helped review and comment on reports produced by the Carbon Working Group.

The significance of this work. Russia has the largest forest carbon sink in the world, and with Russia's participation in the Kyoto protocol, multinational corporations and environmental groups will become more interested in investing in forestry projects that preserve and increase carbon stocks. However, the value of carbon benefits generated from forestry-related projects will depend in large part on the accuracy of baseline carbon measurements. Through its carbon activity, the FOREST Project has developed a framework for establishing carbon baselines over very large areas, and methodologies for monitoring changes in carbon stocks over time. This information will be essential for measuring the FOREST Project's impact on carbon stocks beyond the life of the project. The carbon baselines and measurement methodologies developed by the project will also be important for developing proposals to attract additional international investment in forestry projects in the Russia Far East.



Example of Map showing biomass in Khabarovsk

Future carbon activities. FOREST has developed a scientifically sound, cost effective method of establishing carbon baselines for very large areas of land. This methodology may be replicated in areas where the pest and fire components begin new activities, and they would be able to use the satellite imagery and maps to monitor their progress. The Russian government, institutions, organizations, and others would be able to use the maps and carbon data to develop credible proposals and attract investors in forestry-related carbon offset projects throughout the Russia Far East. Potential future tasks include:

- Add new layers to vegetation and carbon maps including data for coarse woody debris, litter and soil.
- Include non-forest ecosystems (burned forests, peat lands) in vegetation and carbon maps.
- Use higher resolution satellite data to improve mapping of forest types, fires, and logging.
- Scale the local carbon data to very large regions using NASA MODIS data.

2. Summary of Applied Forestry Research Tasks

Task	Location	Status/Results
i. Complete digital forest vegetation and carbon map of Khabarovski Krai	Woods Hole, MA	The Woods Hole Research Center (WHRC) created a preliminary Khabarovski Krai forest carbon map (Figure 1) that incorporates Dr. Vlady Alexeyev's knowledge and data with additional data from Dr. Dmitry Efremov of the Far Eastern Forest Research Institute, by using a vegetation map of Khabarovsk (Stone, T. A. and P. Schlesinger, 2002) developed at the WHRC in an earlier segment of work for the

		FOREST Project. The carbon map illustrates the greater carbon density in the southern part of the territory and the increase in forest stocking percentage in the southern part of the territory. The WHRC also plotted recent fire locations on a new vegetation productivity map, showing the correlation between recent fires and vegetative productivity (Figure 2). The WHRC's final report will be placed on the FOREST Project's website. The WHRC also created two versions of a one-kilometer resolution digital map of Khabarovsk territory's current landcover based on phenology, elevation, and information about recent forest fires (Figure 3). The fifty-class landcover map demonstrates the significant complexity of the region's landcover combined with its high variability in terrain, a component not recognized in any other landcover map of the region.
ii. Develop digital vegetation and carbon map of the pest target area near Krasnoyarsk	Krasnoyarsk	The V.N. Sukachev Institute of Forest developed a digital vegetation map of the pest target area around Krasnoyarsk (See Appendix C; Figures 4 and 5). In support of this work, the Woods Hole Research Center ordered 26 scenes of TM Landsat imagery with coverage of the pest target area. They processed the imagery and then sent it by courier to S. Cherkashin.
iii. Develop principles of carbon-monitoring plan including carbon methodologies for validating digital vegetation maps of Khabarovski Krai and Krasnoyarski Krai	Krasnoyarsk	Draft report has been submitted and is being reviewed. Final report will be placed on the FOREST Project's website.
iv. Summarize forest inventory data and estimate phytomass and carbon storage in forest stands of Krasnoyarski Krai and the pest target area of Krai	St. Petersburg, Krasnoyarsk	Draft report has been submitted and is being reviewed. Final report will be placed on the FOREST Project's website.
v. Summarize forest inventory data and estimate phytomass and carbon storage in forest stands of Khabarovski Krai and the fire target area of Krai	Khabarovsk	Draft report has been submitted and is being reviewed. Final report will be placed on the FOREST Project's website.

3. Key Deliverables

- Digital vegetation/carbon maps of Khabarovski Krai and the pest target area near Krasnoyarski Krai, and reports on the methods used to generate the maps.
- Baseline forest carbon inventories for Krasnoyarski Krai and Khabarovski Krai.
- Names and addresses of Russian scientists to create carbon information network for the Russia Far East.
- Framework for establishing carbon baselines in other FOREST Project areas.
- Project reports, carbon data, and map files (ArcView GIS) available on the Web site.

4. Level of Effort

Approximately 11 months were spent on applied forestry research during Year Two.

C. Grants Program

1. Highlighted Activities, Results, and Findings

The grants program supports the four technical components of the FOREST project by funding Russian organizations, institutions and non-governmental organizations for specific activities that will promote the project's goals.

A total of $282,000 in grant contracts was awarded to 12 grantees during Year Two of the project. Grants include:

Fire Prevention

- $25,000 Emergency Grant to buy equipment to fight forest fires to the Khabarovsk Regional Branch of Public Organization Russian Society of Foresters.
- Two grants of approximately $15,000 each to develop Forest Recreation Areas (to reduce fires from forest users) to the Interregional Association of Independent Tour Operators of the Far East (Khabarovsk); and the Far Eastern Scientific Research Institute of Forestry (Khabarovsk).
- Three grants totaling $44,000 support rest areas and were awarded to: Sakhalin Oblast Public Organization Club Boomerang (Yuzhno-Sakhalinsk); Khabarovski Krai Public Organization Model Forest Gassinskiy (Khabarovsk); All-Russia Scientific-Research Institute of Forest Fire Protection and Forestry Mechanization (Krasnoyarsk).

Pest Management

- A grant totaling $40,000 was awarded to the Center on Forest Protection of Primorski Krai (Vladivostok).

Non-Timber Forest Products and Secondary Wood Processing

- Two grants of approximately $30,000 each were awarded to establish Information Resource Centers (for forest sector association members) to State Siberian Technological University (Krasnoyarsk) and the Far Eastern Secondary Wood Processors Associations.
- One grant of $30,000 to Sakhalin Forest Product Processors Association (Yuzhno-Sakhalinsk) for a Saw Filing Training Center.

Biomass Energy

- Two grants totaling $54,000 were awarded to conduct feasibility studies for biomass plants. Grants were awarded to Limited Liability Company Parusnovsky Woodworking Enterprise (Sakhalin Oblast, Parusnoye village) and Open Joint Stock Company Yartsevski Lespromkhoz (Zotino village).

FOREST trained 92 people (41 men) on how to write a proposal, and 28 people (16 men) on how to report financial and technical information. Staff and volunteer experts conducted the trainings. Manuals were developed for both training sessions.

Table 4 shows the number of applicants by region of the grants for Year Two.

Table 4. Grant Applications and Awards by Region

Region	No. of Prequalification applications submitted	No. of prequalified applications accepted	No. of full grant application submitted	Number of approved applications
Khabarovski Krai	27	25	21	4
Krasnoyarski Krai	18	16	12	3
Irkutskaya Oblast	2	0	0	0
Primorski Krai	1	1	1	1
Sakhalinskaya Oblast	7	7	7	3
Total	55	49	41	11

2. Summary of Grant Program Tasks

Task	Location	Status/Results
i. Design Loan Program	Khabarovsk, US	Loan Business Plan developed and decision not to continue the activity
ii. Administer Grant Program	Khabarovsk, Sakhalin, Krasnoyarsk, Vladivostok	12 grants awarded totaling $281,000
iii. Train Grant Recipients	Khabarovsk, Sakhalin, Krasnoyarsk, Vladivostok	92 people trained on *How to Write a Proposal*; 28 grantees trained on *Reporting Requirements*
iv. Develop Grant Management Database	Khabarovsk	Tracking program developed

3. Key Deliverables

- Grant procedures manual update
- Manual on full grant application writing
- Manual on effective grant application writing
- RFA for topics of the first, second, and extra grant cycles

- Loan component business plan
- Grant agreements
- Grants management database

During Year Two, the FOREST Project explored the opportunity to create a loan program. Based on the number of small and medium-sized credit programs already existing, USAID and Winrock agreed not to pursue this activity.

4. Level of Effort

During Year Two approximately 32 months were spent on the grants program.

D. Volunteer Program

1. Highlighted Activities, Findings, and Results

Fifty-one volunteers assisted 38 organizations in Khabarovski and Krasnoyarski Krais and Sakhalin Oblast during Year Two. Sixteen of the assignments were completed by 11 Russian Volunteers who donated a total of 5.4 months of their time. Table 9 shows the break down of assignments and Table 10 shows results as per USAID's Strategic Objectives.

Table 9. Volunteer Assignments by Topic

Assignment Topic	Number of Assignments
1.Business Planning	9
2.Trainings, workshops, seminars	7
3.Marketing	8
4.Fundraising	4
5.Public Awareness Campaigns Planning	3
6.Park Development	3
7.Feasibility Studies	4
8.Wood-processing Projects	3
9.Processing technologies	3
10.Loan Program Development	3
11.Educational Programs	2
12.Database Development	2
13.Financial Management	1

The following assignments were completed in June:

Fire Prevention: Brian Aptekar and Damien Francaviglia assisted Association Region 7 with developing the Master and Business Plans for a recreation area. The new park named Amur Ecopark will serve as an ideal opportunity to share the fire prevention message with visitors, as well as meet the strong need for recreation opportunities providing picnic and other facilities. A landscape architect will follow these two assignments in July - August 2002 to conduct a survey of the park area, and design detailed park maps.

Pest Monitoring and Management: Russian volunteer Yuri Gninenko analyzed the pest situation in Sakhalin and identified several zones for pheromone trap placement for monitoring the Siberian moth. Twenty pheromone traps were placed to monitor the possible outbreak. He also provided recommendations on the pest policy for Sakhalin Forestry Service.

Secondary Wood Processing and Non-timber Forest Products: Gerhard Loeffel assisted Arcada, a windows and doors manufacturer based in Krasnoyarsk, in strengthening their company capacity. The volunteer provided the company with detailed recommendations on improving the current product line and on marketing issues aimed at increasing sales volume.

Earlier this year, President Bush called on Americans to volunteer. FOREST provides Americans and Russians the opportunity for mid-career professionals – those that are not able to take two years off for the Peace Corp – to contribute in a tangible way. FOREST volunteers not only directly support the goals of the project, but they build friendships and relationships between people of different areas and different cultures.

Urs Buehlmann assessed the opportunity for establishing a local processing facility for wood products in Okha region. He developed an action plan that contains recommendations on potential wood processing products, establishing local expertise, and improving regional infrastructure. Potential products include wood pulp, engineered wood products (particle board, MDF), and softwood chips.

Volunteer B. J. Shannon recommended that NTFP producer Ecovit promote essential oils by writing articles on the benefits their products. As a result, fir oil sales increased 100kg/month and pine oil sales increased 100liter/quarter.

Table 10. Volunteer Program Results as per USAID/Russia's Strategic Objectives

SO 2.1 A More Open, Participatory Society		
IR 3.2	*Year Two Total*	*Comments*
Russian Volunteers	9 (2 women)	total of 5.3 months of time

NOTE: Other results are counted within the relevant component.

3. Key Deliverables

- Voyage—a Far East Secondary Wood Processors Association member – completed a Strategic Business Plan in February 2002. Two initial tasks (purchasing of a saw mill and dry kilns) have been done, the equipment will be installed in the end of July.
- Three Associations – the FOREST Project partners (Krasnoyarsk NTFP Processors, Sakhalin Association of Secondary Wood and NTFP Processors Far Eastern Association of NTFP processors) were assisted with Strategic Business Planning.
- A master plan and a business plan for the Amur Ecopark recreation area were compiled on the request of the Region 7 Association.
- Two new products, berry chips and new spread concepts based on honey and wild berry syrups, were created for Forest Products, a member of the Khabarovsk NTFP Association.
- The educational material developed on *Reforestation and Plantation Establishment* and *Forest Utilization* has helped the Information Center of the Forest Management Specialist to achieve institute status. This means both higher education quality and wider enrollment.

- All-Russia Nature Protection Society was assisted with strategic marketing planning and with training in applying for two grants for a public awareness campaign for Forest Fire Prevention. The All-Russia Nature Protection Society has won the grant of $5,000.
- The Information Center of the Forest Management Specialist in Sosnovka, Khabarovsk, was awarded a FOREST grant of $15, 000 to develop a Natural Park Zone. The Information Center of the Forest Management Specialist in Sosnovka received training on grant writing and Park Zone strategies through the FOREST Volunteer Program.

Volunteers often continue to contribute after they return home. Volunteer BJ Shannon connected NTFP processor Ecovit with five potential customers after returned home. Volunteer Gerhard Loe *Region 7,* an NTFP association, concluded that they could produce medicinal products cheaper than their Moscow competitors. FOREST helped the association to develop, test, and certify 10 new products including Siberian Ginseng, magnolia vine tree, milfoil herb, and St. John's Wort for their member company Vostokbioproduct. By May, preliminary tests were completed and identified sources for a sanding machine and other equipment for a window and door production company.

This kind of assistance offers the opportunity to promote exchanges and long-term relationships between Russian and American businesses and organizations - laying the basis for business cooperation.

4. Level of Effort

Approximately 39 months were spent on the Volunteer Component during Year Two.

VI. Issues, Problems, and Steps to Address

This section summarizes issues that have arisen while implementing one or more of the project components, and plans to address these issues.

Refining impact indicators. Based upon experience to date, staff and project partners note that some of FOREST's performance indicators should be modified to improve project monitoring and better communicate FOREST's results. For example, the fire prevention team and the forest service in Khabarovski Krai developed the mechanisms for collecting data on the causes of forest fires and fire weather classification information. The goal was to develop an indicator which would take into account the effects of weather on the causes of fires from year to year. It was concluded that this was not feasible. Therefore, it is not possible to create a reliable formula to compare the number of human-caused fires from one year to another. This brings into question the validity of the overall fire prevention impact indicator, which is to reduce human-caused fires by 10 percent during the life of the project. Similar types of issues have arisen with other component indicators. Staff are analyzing current and alternative indicators, and will propose revisions at the next Advisory Council meeting.

Expanding fire prevention education/communication activities to other regions and restructuring the Fire Prevention Working Group. The management structure of the fire prevention team has been adjusted and action plans developed to expand forest fire education/communication program to the other krais/oblasts**.** To expand the education and communication programs, a new regional working group was formed consisting of the regional coordinators and a representative of the Contact Group in each krai/oblast.

Securing consensus on the information to be communicated. During Year Two a major effort was devoted to creating informational materials to be used by foresters, educators, mass media, and other members of the Contact Group. These were all produced with the full participation of technical specialists and members of the Contact Group. In many cases there were difficulties in securing a consensus on the content of fact sheets, tip sheets, teacher guides, and forester communication guides. Different approaches are currently being tested to streamline the consensus process.

Lack of experience in using biomass energy in Russia. FOREST is working to increase awareness and interest in the possible use of biomass energy among wood processing companies and financial institutions in the region. Companies and their associated design firms need training to increase their capacity to design and operate biomass energy facilities. The design firms hired to develop financial and technical assessments require assistance, particularly technical support, and sharing US/international experience (e.g. in selecting appropriate biomass energy equipment) will greatly increase the chance for successful investments. FOREST plans to provide training and technical support to companies and their associated design firms during Year Three to help with the development of investment plans and to build expertise in the region.

Skepticism about U.S. volunteer experts. Many companies continue to be skeptical about an American specialist effectively advising a Russian enterprise. Successful assignments of highly qualified specialists help to overcome this skepticism and to build a good reputation. The program received 10 official letters of thanks from companies the project offered volunteer technical assistance. All the letters emphasized the high professional skills of the volunteer-experts.

Russian volunteer-experts providing technical assistance have had a positive impact on the project. Joint assignments with Russian and American experts bring tangible results because the assessments and analysis provided reflect two different perspectives that enable a high level of problem solving.