



Environmental Policy and Technology Project

Russian Far East Sustainable Natural Resources Project
Khabarovsk Field Office

IMPACT STATEMENTS

Delivery Order 11, Component 2: Sustainable Forest Management Russian Far East Tasks 18-22

During the period of 1994-97, the Russian Far East Environmental Policy and Technology Project has achieved some remarkable accomplishments. Integral to the success of the overall program has been the outstanding realization in component 2, Sustainable Forest Management.

The pages that follow are a series of Impact Statements that summarize some of the ma-

ior accomplishments of the Russian Far East forestry tasks. Each section is color coded to correspond to different tasks. Each section has an overall summary of accomplishments followed by numerous activity based impact statements.

As you will see, the Russian Far East EPT Project has made significant and lasting changes in Russian Forestry.

Fire Protection

Conifer Container Greenhouses

Forest Regeneration

Seed Extractory and Storage Facility

Forest Planning

Non Timber Forest Products

Program Summary: Forestry



Environmental Policy and Technology Project

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Fire Protection

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Non Timber Forest Products

Map locations: Komsomolsk na Amure, Gurskoe, Tronskoe, Uaino, Sobetskaya, Gavah, Mukhen, Nekrasovka, Khabarovsk, Bikin, Krasny Yar, Luchegorsk, Spassk Dalny, Terney, Plastun, Chuguevka, Ussurisk, Nakhodka, Vladivostok.

Program Summary: Forestry



Environmental Policy and Technology Project

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IMPACT STATEMENT

Task 19-D Non Timber Forest Products

Task 19, component d, has met and exceeded all expectations and deliverables set fourth in the work plan. In June and July of 1995 EPT completed a market study of the non timber forest products industry in Primorskii and Khabarovskii Krai. The report identified the various non timber forest products with the highest potential for production in RFE markets as well as international markets. Further, the study recommended the introduction of new technologies aimed at improving the processing and harvesting technologies of the region.

Following the industry study EPT sponsored and delivered 5 educational programs for non timber forest products processors in the region that lasted from 3 to 5 days each. The topics of the short courses included processing technologies, marketing, and harvest management concerns. The educational programs reached directly 91 individuals representing over 60 companies and villages in the region. Additionally, the EPT RFE Chief Forester visited and worked directly with over 25 village based companies in the RFE to develop improved harvest management principles, introduce and train processors in new technologies, and assist with company management principles.

EPT assisted in the creation of the region's first industry association designed especially for non timber forest product processors. The "Far Eastern Association of Non Timber Forest Products Processors" was officially registered in Khabarovskii Krai in the spring of 1996. The aim of the Association is to provide a point source for industry information on harvesting, processing technologies, market information and pricing and cooperation between harvesters and processors.

Assistance in the form of direct equipment awards was carried out in conjunction with training workshops and

one-on-one assistance provided by the EPT RFE Chief Forester. Direct equipment awards included the identification of appropriate equipment and where technological gaps were found, the design and construction of new technologies in the region. EPT delivered to processing companies in the region the following equipment:

- a 20 vacuum sealing machines and 50 000 product bags, delivered to 18 companies
- b 28 full size infrared dehydrators delivered to 12 companies and villages
- c 20 economy size infrared dehydrators delivered to 8 companies, villages, and the NTFP Association
- d 12 production model "Harvest Master 17" dehydrators delivered to 5 companies
- e 50 product weighing scales delivered to 20 companies
- f A juice extractor and bottling facility delivered to the Limonnic Company in Vladivostok
- g A honey packaging line for flavored honey products delivered to Amurbiopharm in Khabarovsk
- h Equipment for marketing member products (computer, printer, software, copier) was delivered to the Far Eastern Association of Non timber Forest Product Processors
- i Product advertising brochures, product labels, and advertising campaigns have been developed through EPT for 14 RFE NTFP companies

Each of the equipment awards was combined with training seminars on site at the processors facility to insure understanding of the technology and operations. EPT RFE Chief Forester visited and worked directly with over 25 village based companies in the RFE to develop improved harvest management principles, introduce and train processors in new technologies, and assist with company management principles.



Task Summary



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IMPACT STATEMENT

Processing Seminar September 1995

Situation

Non timber forest products (NTFP) companies in the Russian Far East are struggling to develop appropriate technology to process forest found foods and medicinal products for sale in Russian markets as well as international markets. Russian dehydration technology focuses on cooking products at high temperatures that degrade nutritional value. Further, packaging practices make no allowance for blocking bacteria contamination.

The EPT sponsored NTFP industry study in the RFE in the summer of 1995 pointed to wild edible mushrooms as one of the most promising forest found items in terms of gaining increased markets in Russia and abroad. Commercial processing has potential, if certain new technologies can be practiced.

Our Response

The Environmental Policy and Technology (EPT) Project sponsored a series of three weeks of training in mushroom processing in the RFE. Three US based specialists headed the training seminars: William Schlosser (Michigan State University), Keith A. Blatner (Washington State University), and John Williams (Hoffman and Williams) teamed efforts to deliver a one week training seminar in

Troitsky, Khabarovskii krai; a 3 day business planning seminar in Khabarovsk, and then travel to various collection sites in Primorskii and Khabarovskii kraii to assist with training, business planning, and community development issues.

In order to make the training seminars successful, new technology in dehydration and packaging was developed. William Schlosser designed a dehydration chamber and coupled it with a Russian hot air jet blower to form a commercial model dehydrator. The EPT Khabarovsk Office worked with a Khabarovskii krai factory to build two prototype models. These prototype dehydrators were used at the training seminar in Troitsky and then competitively awarded to two companies present at the training seminar based on superior business plans.

The Impact

The traditional wild edible mushroom processing technology of this region, as in most of Russia, involves fresh preparation by boiling, salting, and brining. The introduction of dehydration technology in the absence of salt and boiling was mostly alien to the participants of the workshop, as was the technology of vacuum sealing the processed foods. Other discussions included food safety (botulism, molds, and damaging food impurities), and business management (inflation, interest rates, and foreign currencies).

During the workshop, a group of individuals, about 1 from each village or company represented in the class, worked daily in the forest with a mycologist (Evgeny Bulakh, Vladivostok) on species identification and harvesting. The remainder of the participants (25 people) studied in the classroom and processing facility.

All participants worked various shifts on the project to sort and grade all mushrooms for purchase from the harvesters; another shift cleaned and processed in preparation for the dehydrator; a third shift loaded the dehydrator and operated it through the night, while a fourth shift packaged all of the mushrooms in the morning before the class started daily.



The goal of the workshop was to operate the processing phase of the workshop as much like a business as possible so that participants would be familiar with operations, complications in processing, and be able to suggest changes in the operations. This portion of the project was one of the most positive aspects of the training session. None of the participants had operated a mushroom dehydrating business before, and only after the workshop could they relate to the ideas and procedures discussed in class.

The combination of technical training, economics and finance, and community development proved to be a very strong educational tool for the participants at the workshop. Additionally, the opportunity and expectation for everyone to work in the processing of the mushrooms daily added a unique opportunity for everyone to experience all facets of processing and packaging.

Key Personnel:

William E. Schlosser, EPT/RFE Chief Forester
Keith A. Blatner, Professor, Washington State University
John Williams, Hoffman and Williams Consultants, D.C.

Birgit Pashkurova, Program Support Specialist, EPT, Khabarovsk
Igor Saitsky, Office Manager, EPT, Khabarovsk
Evgeny Bulakh, Mycologist, Vladivostok, Russia
Vera Barabara, Translator, Khabarovsk, Russia



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IMPACT STATEMENT

Far Eastern Association of NTFP Processors

Situation

Non timber forest products (NTFP) companies in the Russian Far East have struggled with basic industry infrastructure problems in the form of marketing, technical assistance, and industry linkages since the fall of the former Soviet Union. Although products still exist in the Russian Far East Taiga the industry is struggling to develop the business linkages needed to develop this industry as an economically viable component of the rural employment picture.

Our Response

During an EPT sponsored NTFP seminar in June 1995, in Khabarovsk the idea of developing a Russian Far East Association for the Non Timber Forest Products Industry was introduced to numerous individuals integral to the industry. The idea while supported by the industry and EPT was developed by Andrei Zacherenkov of Khabarovsk. Mr Zacherenkov worked with numerous groups and individuals to realize the formation of the Association, including Khabarovskii krai Vice-Governor Alexander Levintal, EPT Chief Forester William Schlosser, PERC Community Development Specialist Misha Jones, the University of Alaska American-Russian Center, the American Business Center, and other individuals and organizations.

To assist Association formation efforts EPT provided assistance to Mr Zacherenkov. After completing a business planning class sponsored by the University of Alaska American-Russian Center in Khabarovsk Mr Zacherenkov was sponsored by the EPT Project to travel to the USA to complete a second phase of training in Anchorage Alaska. After successfully completing his training in Anchorage EPT sponsored Mr Zacherenkov's travels in the western states of the USA to observe non timber forest products processing. Additionally he met with the Pacific Environmental Resources Cen-

ter in San Francisco, California, to discuss his involvement in their programs in the Russian Far East. As development of the Association continued, EPT sponsored Mr Zacherenkov as a trainer at EPT supported training sessions. His involvement in these sessions was always beneficial and helped to establish the functions of the forming Association.

The Impact

The **Far Eastern Association of Non Timber Forest Products Processors** was officially registered in Khabarovskii krai in the Summer of 1996.

By the summer of 1997 the Association has grown to represent 45 companies involved in NTFP processing in the Russian Far East.

EPT has continued to develop the partnership with the Association by assisting with the transfer of equipment to the Association. During 1996 and 1997 EPT delivered low volume infrared

dehydrators and vacuum packaging machines to the Association. The association used this equipment to train processors in remote villages in processing techniques. Additionally, the Association took a leadership role in the development of technical specifications for dehydrated products from the infrared dehydrators that EPT supplied to production oriented companies.

In 1997, EPT supplied the Association with office equipment to assist in the development of marketing materials and to maintain membership records. The equipment included a computer, printer, copier, and fax machine. This much needed equipment was put to use in the Association with the impact being an increased ability to meet the needs of its members.

As the industry continues to grow the Association fills the role of first contact for Russian and international interest in purchasing RFE products. This type of cooperation between the industry members is integral to the future success of this industry in the Russian Far East.



Key Personnel:

William E. Schlosser, EPT/RFE Chief Forester

Andrei Zacherenkov, Director, FEANTFPP (NTFP Association)

Misha Jones, Pacific Environmental Resources Center

Alexander Levintal, Vice Governor, Khabarovskii krai



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IMPACT STATEMENT

NTFP Marketing Seminar

June 1996

Situation

Non timber forest products (NTFP) businesses in the Russian Far East provide thousands of jobs annually in the production of wild grown native plants for use as food, tea, medicinal products, and pharmaceuticals. Traditionally these products are harvested from the Taiga adjacent to rural villages where unemployment rates are critical and new technologies are rare. Rural communities and processing infrastructure for NTFP's are in need of training in harvesting, processing, and marketing these unique goods in order to compete in the multinational market that now pervades Russia and the rest of the world.

Our Response

The EPT Project developed an educational program series specifically for local NTFP processors. While harvesting and processing educational activities were scheduled for August, 1996, (during the harvest season of berries and mushrooms), a workshop titled "Advanced Marketing Techniques of NTFP's from the RFE" was prepared and delivered for a select group of NTFP processors on June 27-29, 1996, at the Russian federal Forest Service Training Center in Sosnovka (near Khabarovsk). Workshop participants were selected collaboratively between EPT and the RFFS to include participants from southern Primorskiï Krai through central Khabarovskiï Krai. The seminar covered various marketing topics including world markets, creating a marketing plan, customer relations, promotion, mini media, advertising, and a group challenge to devise a product marketing effort. The workshop was an interactive learning experience between the instructors and the participants using instructor presentations, group discussions, debates and team projects.

The Impact

Sixteen individuals participated in the three day workshop representing private companies, forest Leskhoz and associated interests in the processing of NTFPs. The participants indicated that they attended the workshop in an effort to improve marketing techniques (77%), to learn more about western marketing (54%) and to develop specific skills to expand business relationships in Russia (54%). Seventy-seven percent of the participants indicated that they had participated in one or more assistance programs offered by US-based companies and US-government sponsored agencies. Approximately 62% had participated in EPT sponsored programs prior to this workshop. The overwhelming majority of the participants, 92%, indicated that they definitely would implement improved marketing practices as a result of attending this seminar¹. All of the participants rated the educational program as excellent to good with 100% rating the instructors as excellent.

The overwhelming majority of the participants (92%), indicated that they definitely would implement improved marketing practices as a result of attending this seminar

Eighty-five percent of the participants rated the hand-out materials as excellent to good while everyone rated the quality of the information presented as excellent to good. The participants were unequivocally motivated in the absorption of the information during formal presentations and breaks. Follow-on training will be completed by EPT visits to the businesses that request further assistance. Additionally many participants requested that a follow-on training seminar be considered in the future for this group of advanced learners to continue the advances in marketing education.

¹ Participants were given a 5 point scale to rate attributes of the seminar: excellent, good, average, fair, and poor.

Educators:
William E. Schlosser, EPT/RFE Chief Forester
David M. Baumgartner, Washington State University Professor and EPT Consultant

Interpreters:
Pashkurova Birgit Rudolfovna, Program Support Specialist
Usova Elena Pavlovna, Assistant Chief Forester
EPT Khabarovsk Field Office Staff



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IMPACT STATEMENT

NTFP Processing Seminar-Mukhen

August 13-15, 1996

Situation

Non timber forest products (NTFP) businesses in the Russian Far East provide thousands of jobs annually in the production of wild grown native plants for use as food, tea, medicinal products, and pharmaceuticals. Traditionally these products are harvested from the Taiga adjacent to rural villages where unemployment rates are critical and new technologies are rare.

Processors of NTFPs can greatly benefit from training in harvesting, processing, and marketing these unique goods in order to compete in the multinational market that now pervades Russia and the rest of the world.

Our Response

As part of an integrated program to expand sustainable use of NTFPs in the Russian Far East a hands-on workshop was organized in the village of Mukhen in Khabarovsk Krai on August 13-15, 1996. The three day event sponsored by the Environmental Policy and Technology (EPT) Project included both lecture/discussions and practical skills training and provided an opportunity for people to learn more about the picking, sorting, processing, drying and packaging of NTFPs with an emphasis on mushrooms, berries and medicinal herbs. Discussions on herbal and true tea combinations based on locally available products was provided. Attention was given to international standards for these products as well as marketing and sales including development of business plans. In addition, there were discussions about labor organizing strategies in villages and sustainable use of NTFPs and the planning necessary in order to avoid the problems associated with over-harvest.

The Impact

This educational opportunity was conducted as a cooperative effort between the EPT Project, the Far Eastern Association of Non Timber Forest Products Processors and the Pacific Environment and Resources Center (PERC). Classroom instruction was prepared by William Schlosser (EPT Chief Forester), Andrei Zakharenkov (Director of the Association), Evgeniya Bulakh (Soils and Biology Institute, RAN Vladivostok), Aleksandr Basharov (Khabarovskii Medical Institute Khabarovsk), and Misha Jones (PERC). Field and processing work was organized and carried out by Andrei Zakharenkov, Evgeniya Bulakh and Lyuba Chernishova.

The Mukhen LesKhoz and Promokhota JS Company provided facilities for classroom discussions and processing work.

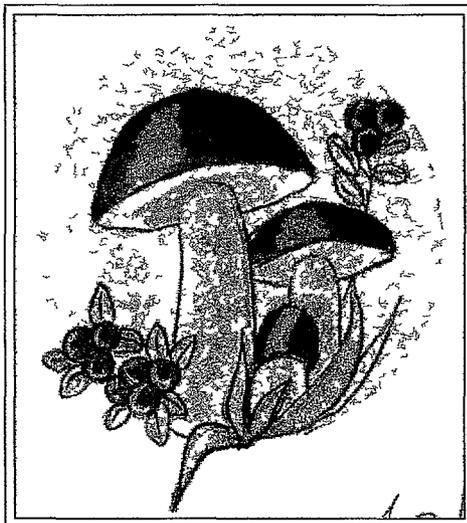
Twelve individuals representing five villages and/or organizations attended the training opportunity.

An aim of the workshop was to identify individuals and groups that the organizers felt demonstrated promise as prospective producers of NTFPs.

In order to produce uniform products that meet marketing standards equipment (dryers, scales, packaging, and labels) was provided to people and organizations.

Three full sets of equipment were distributed at this workshop and are now in use in the region.

The enthusiasm shown by the participants indicates that there is a real interest in the development of NTFPs. Discussions were lively, especially in contexts where people were able to talk about their own experiences with gathering and processing NTFPs and the problems associated with finding buyers.



Three full sets of equipment (dehydrators, scales, vacuum sealers, product bags and labels) were distributed at this workshop and are now in use in the region.

Key Personnel:

Andrei Zakharenkov, FEANTFPP (The Association)
Aleksandr Basharov, Khab. Medical Institute, Khabarovsk
Lucna Usova, Chief Forester, Assistant, EPT, Khabarovsk

William E. Schlosser, EPT/RFE Chief Forester
Evgeniya Bulakh, Soils and Biology Institute, Vladivostok
Misha Jones, Pacific Environment and Resources Center
Lyuba Chernishova, Village of Krasnyyair



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IMPACT STATEMENT

NTFP Processing Seminar-Chuguevka

August 27-29, 1996

Situation

Non timber forest products (NTFP) businesses in the Russian Far East (RFE) are an essential facet of the local economy and provide thousands of jobs annually in the production of wild grown native plants for use as food, tea, medicinal products and pharmaceuticals. NTFPs have been traditionally harvested from the Taiga adjacent to rural villages where unemployment rates are critical and new technologies are rare.

Processors of NTFPs can greatly benefit from training in harvesting, processing and marketing these unique goods in order to compete in the multinational market that now pervades Russia and the rest of the world.

Our Response

As part of an integrated program to expand sustainable use of NTFPs in the RFE a hands-on workshop was organized in the village of Chuguevka in Primorski Krai on August 27-29, 1996. The three day event sponsored by the Environmental Policy and Technology Project (EPT) included lecture, discussions and practical skills training, and provided an opportunity for people to learn more about the picking, sorting, processing, drying and packaging of NTFPs, with an emphasis on mushrooms, berries and medicinal herbs. Discussions were held on the US tea market, with special emphasis on packaging, quality control and sustainable harvest requirements. Attention was given to international standards for these products as well as marketing, sales and product development. In addition, there were discussions about labor organizing strategies in villages and sustainable use of NTFPs and the steps necessary to avoid the problems of over-harvest.

The Impact

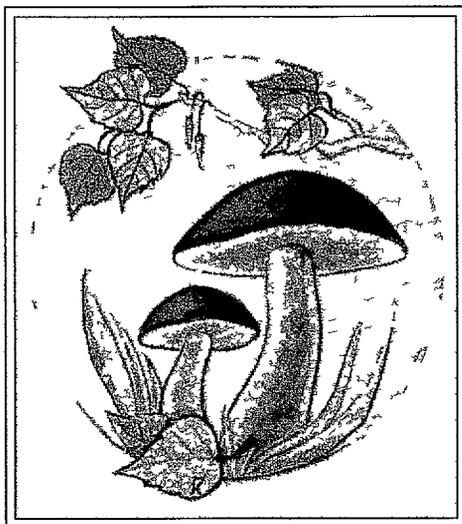
Support was provided by representatives of the Far Eastern Association of Non Timber Forest Products Processors, and the Pacific Environment and Resources Center (PERC). Classroom instruction was prepared by William Schlosser (EPT Chief Forester), Andrei Zakharenkov (Director of the Association), Evgeniya Bulakh (Soils and Biology Institute RAN, Vladivostok), Petr Gorovoi (Pacific Institute of Bio-organic Chemistry, Vladivostok), Aleksei Zavorotni (All Russian Institute of Medicinal and Aromatic Plants, Vladivostok), as well as Misha Jones and Sarah Lloyd (both of PERC). Field and processing work was organized and carried out by Andrei Zakharenkov, Evgeniya Bulakh and Lyuba Chemishova. Chuguevski LesKhoz provided facilities for classroom discussions and processing work.

Twenty individuals representing ten villages and organizations attended the training opportunity.

An aim of the workshop was to identify individuals and groups that the organizers felt demonstrated promise as prospective producers of NTFPs. In order to produce uniform products that meet marketing standards, equipment (dryers, scales, packaging, and labels) was provided to people and organizations. Six full

sets of equipment were distributed at this workshop and are now in use in the region.

The enthusiasm shown by the participants indicates that there is a real interest in the development of NTFPs. Discussions were lively, especially in contexts where people were able to talk about their own experiences with gathering and processing NTFPs and the problems associated with operating under the Russian system of taxation.



Six full sets of equipment (dehydrators, scales, vacuum sealers, product bags and labels) were distributed at this workshop and are now in use in the region.

Key Personnel:

Andrei Zakharenkov, FEANTFPP (The Association)
Petr Gorovoi, Pacific Institute of Bio-organic Chemistry, Vlad
Lena Usova, Chief Forester Assistant, EPT, Khabarovsk
Sarah Lloyd, Pacific Environment and Resources Center

William E. Schlosser, EPT/RFE Chief Forester
Evgeniya Bulakh, Soils and Biology Institute, Vladivostok
Misha Jones, Pacific Environment and Resources Center
Lyuba Chemishova, Village of Krasny Yar
Aleksei Zavorotni, Inst. of Med. and Aromatic Plants, Vlad



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IMPACT STATEMENT

NTFP Marketing Assistance

1996-97

Situation

Non timber forest products (NTFP) companies in the Russian Far East are expanding production of wild collected herbs, mushrooms, medicinal roots, and other traditional products. As these companies gain a footing in local markets they are struggling to compete in international markets. To initiate sales and gain market share these companies need to develop attractive language specific labeling and multilingual advertising materials. However, few of the RFE companies possess the critical mass needed to be able to develop such materials.

Our Response

The Environmental Policy and Technology (EPT) Project identified a number of RFE companies that were in the situation of having marketable products but limited capabilities for producing advertising or labeling. A total of five companies received direct assistance from the EPT project in 1996 and 1997 in developing marketing materials.

The Impact

All of the companies that received assistance are currently using their materials effectively to increase market share and to develop new markets. A marketing strategy was developed in partnership with the Far Eastern Association of Non Timber Forest Products Processors. The association logo and name (pictured top-center) are proudly displayed on all labels and advertising materials of member companies. The following are some examples of the assistance provided.

Promokhota JS Company

As Khabarovskii krai's leading NTFP processor Promokhota JS Company has gained market share in the RFE in part due to labeling assistance provided by EPT. Russian product labels for wild Siberian garlic (pictured top-right), birch-brusenicka cocktail, bottled



juice labels, Limonic bottled syrup labels (pictured lower-center), Kalina bottled syrup

labels, dehydrated aspen bolete labels and dehydrated King boletus labels. Additionally, EPT assisted Promokhota in developing English packaging labels for



all of the Russian labels identified above. An example of the English version of the dehydrated Aspen bolete

mushroom label is pictured (bottom-left). These labels have made a real difference in the success of Promokhota's marketing efforts because of their attractiveness, color coding, and market appeal.

All Promokhota labels proudly display the slogan "Naturally grown and produced in the Russian Far East".

Amurbiopharm JS Company

Amurbiopharm is the region's leader of packaged adaptogenic tea products. While they already have a significant market share in Khabarovskii krai markets, they are seeking increased entrance into international markets. EPT and Amurbiopharm developed a full color, 12 page, Russian-English advertising brochure (pictured bottom-right).

This brochure has been distributed to potential business contacts from America to Europe and is being credited with stimulating new orders while bolstering interest in Amurbiopharm's

products. This brochure depicts Amurbiopharm products, harvest procedures, processing techniques, and shares information on the people of Amurbiopharm.

These examples depict just a sample of the marketing assistance NTFP companies in the RFE have received from EPT. This integrated approach to industry assistance makes it possible to aggressively develop products and markets while employing people in an environmentally sensitive business activity.



Key Personnel

William E. Schlosser, EPA/RFE Chief Forester
Irina Usova, Chief Forester, Assistant, EPT, Khabarovsk
Boris Pashkurova, Program Support Specialist, EPT, Khab

Valery Mysin, Director, Promokhota JS Company
Vladimir Koshelov, Director, Amurbiopharm JS Company
Andrei Zakharonkov, Chairman, FE NTFP Association



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IMPACT STATEMENT

Harvest Master 17 Dehydrators

1996-97

Situation

Non timber forest products (NTFP) companies in the Russian Far East are expanding production of wild collected herbs, mushrooms, medicinal roots and other traditional products. With processing capacity in the region increasing, technology to dehydrate local products is still lacking in many rural areas.

The complication with increasing the ability to process products in rural villages (where economic pressures are the greatest) involves appropriate technology to dehydrate products and equipment that can operate in the absence of a reliable power supply system. Soviet style dehydrators require a reliable power supply and use a system of cooking the food as opposed to true dehydration required on the market today for food safety and health concerns.

Our Response

The Environmental Policy and Technology (EPT) Project developed a system of dehydration that operates completely from a 5 kw benzine powered generator. RFE EPT Chief Forester William Schlosser designed the original dehydration system in 1995 during EPT sponsored workshops in the RFE, then perfected the system in 1997 with the manufacturing of these dehydrators. The fully operational system involves 4 dehydration chambers capable of holding 17 square meters of products inside each dehydrator. Hot air is supplied to the dehydration chambers by jet blowers mounted beside each chamber. Rheostat controlled ventilation fans regulate air flow through the chambers.

The "Harvest Master 17" as they are called is made completely in Russia (mostly in Khabarovsk) and can be replicated by NTFP processors in the region.

Additionally, the EPT Khabarovsk office developed a 25 page manual for operating the Harvest Master 17 and all of its components. English and Russian versions are available upon request.

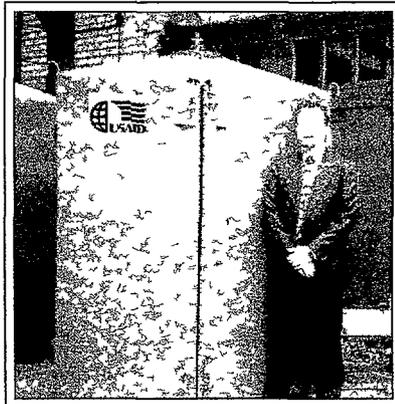
The Impact

Five companies located in the RFE received sets of Harvest Master 17 dehydration systems.

During 1995 Promokhota JS Company received the first dehydration chamber and support equipment as a prototype system. Additionally, Troitski Leskhoz received one dehydration chamber and support equipment after

hosting the week-long processing seminar in 1995. By working with these companies, EPT made modifications to the designs and improvements in user operations. The redesign of the dehydration systems proved successful as an additional 10 dehydration systems were manufactured in 1997.

AO Bikin, located in Krasny Yar (Primorskii krai) received a set of 4 dehydration chambers, 4 jet blowers, one power transformer and one 5 kw generator. Plagued by intermittent power supplies from the central power station averaging only 4 hours a day, this facility will use the 4 dehydrators to process ferns, medicinal herbs, wild Siberian garlic, mushrooms and other products.



Troika Limited Liability Partnership located in the far northern regions of Primorskii krai, Terneisky Raion received an identical set of 4 dehydration units. The pristine Samarga River drainage is home to this company's NTFP harvesting region where mushrooms, ferns, wild Siberian garlic, limonnic berries (and dozens of other berries) are processed. This

company has no reliable central power source in the region. The placement of this equipment marks a significant increase in harvesting, processing, and packaging of NTFP in a region struggling to develop value added processing.

Django Community located in Lazo Raion of Khabarovskii krai received an equipment compliment of 2 dehydrators. Facing the same problems of no reliable electrical supply and limited access to technologically advanced equipment, these units have increased the ability of the community to generate new income from the harvest and processing of forest found food and medicinal products.

Each of these companies have participated in EPT sponsored training programs in harvesting, processing, marketing, and have received one-on-one technical assistance from EPT specialists and consultants from the Far Eastern Association for Non Timber Forest Products Processors.

Designs for producing additional Harvest Master 17 dehydration equipment is available through EPT and the NTFP Association. Numerous NTFP companies operating in the RFE have already made plans to purchase new Harvest Master 17 dehydrators.

Key Personnel:

William E. Schlosser, EPT/RFE Chief Forester

Igor Snitsky, Office Manager, EPT Khabarovsk

Erigit Rashkurova, Program Support Specialist, EPT Khab

Valeriy Mysin, Director, Promokhota JS Company

Lena Usova, Chief Forester Assistant, EPT Khabarovsk

Genia Ten, Programmer/Electrical Specialist, EPT Khab



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IMPACT STATEMENT

Infrared Dehydrators

1996-97

Situation

Non timber forest products (NTFP) companies in the Russian Far East are expanding production of wild collected herbs, mushrooms, medicinal roots, and other traditional products. With processing capacity in the region increasing, technology to dehydrate local products is still lacking in many areas.

Russian Far East NTFP companies generally lack a combination of technically advanced (or appropriate)

equipment coupled with a solid understanding of dehydrating fresh products.

Our Response

The Environmental Policy and Technology (EPT) Project working with the Far Eastern Association of Non Timber Forest Products Processors identified the existence of Russian technology to dehydrate food products using infrared rays.

EPT purchased a sample of 4 large infrared dehydrators in 1996 from the Saint Petersburg firm "Feruza" and began testing them in RFE companies. Additionally, EPT purchased 40 smaller units from the same firm in Saint Petersburg and from another company located in Vladivostok. These smaller units were distributed to a series of companies to gather data on their applicability to RFE conditions and the various products that could be processed using this technology.

During 1997, an additional 24 large volume infrared dehydrators were ordered from the Saint Petersburg company and delivered to 9 different processors in the RFE.

The Impact

The delivery of this equipment has created an immediate and lasting impact on the production potential of the region. By testing this equipment through the use of the smaller dehydrators in 1996, the recipient companies were instantly familiar with the use of the technology and were able to put the equipment to use processing mushrooms, ferns, wild Siberian garlic, aralia, Siberian ginseng, berries of 20 different species, and numerous other products.

Additionally, the study of the original 4 large volume dehydrators gave the project the ability to develop processing guidelines for various products using the infrared technology. These guidelines have been provided with the new equipment.

The companies receiving this equipment include in Primorskiy kraj, Luchegorskoye Limited Liability



Partnership (Luchegorskii raion), Primorskiy Chai (Vladivostok), and Chuguevskii Leskhoz (Chuguevskii raion). In Khabarovskii kraj the recipients of this equipment included Gospromkhoz Vyazemsky (Vyazemsky raion), Promokhota JS Company (Lazo raion), Shishkin Company (Amursky raion), Padilinsky Leskhoz (Amursk raion), Amtur Company (Nanaisky raion), and Evoronsky Leskhoz (Komsolmolsky raion).

All of these companies have participated in EPT sponsored training sessions in harvesting, processing, and marketing. Additionally, all of these companies have received one-on-one assistance from EPT specialists and representatives from the Far Eastern Association of Non Timber Forest Products Processors.

Key Personnel:

William E. Schlosser, EPT/RFE Chief Forester

Olga Usova, Chief Forester Assistant, EPT, Khabarovsk

Bright Pasnikurova, Program Support Specialist, EPT, Khab

Igor Snitsky, Office Manager, EPT, Khabarovsk

Valery Mysin, Director, Promokhota JS Company

Andrey Zakharenkov, Chairman, FE NTFP Association



Environmental Policy and Technology Project

Russian Far East Sustainable Natural Resources Project

Khabarovsk Field Office

IMPACT STATEMENT

Task 21

Forest Fire Prevention and Control

Forest fire prevention and control efforts in the Russian Far East have achieved significant success. Led by US Forest Service fire fighting specialists, the program has achieved and in most cases exceeded the original deliverable expectations.

Two Russian fire fighting teams have received training from the US Forest Service in the United States. The first team from Khabarovskii Krai, traveled through the US in the spring of 1996. Consisting of 6 firefighters, the team learned about US techniques of fire control, controlled burning, public relations, and advertising strategies to reduce the annual losses due to man caused wild fires. The second team from Primorskii kraï traveled to the US in the spring of 1997 and received a tour similar to the one from the preceding year.

Additional efforts in training were accomplished through the consultation of 12 US Forest Service fire consultants in the RFE during the project. These consultants represented various specialties in fire fighting technologies including communications, fire behavior, fire fighting from ground troops as well as aerial attack, equipment specialists, and other areas of useful science. These consultants worked closely with their Russian counterparts and made various recommendations to assist in improving operation effectiveness and efficiency. Additionally, these consultants helped shape the program as it developed to keep it flexible and responsive.

In many cases US Forest Service consultants taught educational programs while in the RFE increasing the outreach of the program. A total of 6 educational programs were taught on fire fighting and behavior as part of the EPT Project. A total of 81 Russian participants participated in the educational programs.

Fire prevention programs were reviewed by a team of US FS Specialists, EPT Chief Forester, and the RFFS fire specialists to develop an improved broad fire prevention and analysis program in each Kraï. A region wide fire prevention symbol was developed by the team. The symbol of a Siberian Tiger Cub is being used in the region to lead public awareness about fire prevention. The program has been introduced in local schools and forestry schools to make the public aware of the impact man caused wild fires have on the region.

A fire prevention analysis in each Kraï was initiated in two locations in the RFE. The first was in Khabarovsk Leskhoz, Khabarovskii Kraï and the second in Chuguevsky Leskhoz Primorskii Kraï. The prevention analysis pointed to the need for more equipment, better trained crews, more roads, and public awareness of the effects of fire.

The delivery of fire fighting equipment has been heralded by the RFFS as one of the most tangible deliverables of the fire fighting program. Equipment delivered to the RFFS has been procured from a combination of US and Russian sources. In some cases the Russian made equipment was redesigned based on the US experience in fire fighting. The equipment is currently in use in the RFE and has been credited for reducing the losses seen in the past because of inadequate or missing equipment. In some cases the US manufactured equipment is being replicated in Russia.

The equipment delivered under this task has not only provided for its use but also has helped to identify what the benefit of an integrated fire protection program can accomplish. RFFS inputs to the program have increased as a direct result of EPT's involvement in the fire program of the RFE.

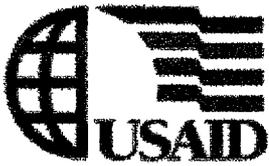
Training materials have been targeted as a means to achieve the increased effectiveness of Russian Fire Fighting Crews. Using materials identified by the USFS, the EPT project has translated approximately 25 publications totaling over 400 pages of translated text. These materials are currently in use in both Kraï to train fire fighting crews.



Fire prevention programs were reviewed by a team of US FS Specialists, EPT Chief Forester, and the RFFS fire specialists to develop an improved broad fire pre-

vention and analysis program in each Kraï. A region wide fire prevention symbol was developed by the team. The symbol of a Siberian Tiger Cub is being used in the region to lead public awareness about fire prevention. The program has been introduced in local schools and forestry schools to make the public aware of the impact man caused wild fires have on the region.

Task Summary



Environmental Policy and Technology Project

Russian Far East Sustainable Natural Resources Project

Khabarovsk Field Office

IMPACT STATEMENT

Fire Prevention Seminar, August 1995

Khabarovskii Krai

Situation

Fires are a common feature in the forests of the Russian Far East. Loss of resources to wildfires has been unacceptably high. To maintain forest ecosystems and address forest health and biodiversity issues a strong system of fire prevention and management is needed. Fire management is a critical priority in the RFE. A strong, capable fire organization is needed to respond to these issues in an appropriate manner.

Our Response

The Environmental Policy and Technology (EPT) Project and the US Forest Service (USFS) Forest Fire Prevention and Management Work Group developed a broad fire prevention and analysis program targeted for the two kraia. The idea met with strong support from the Russians who so far do not use a fire prevention planning effort that targets problem areas or groups.

The program was initiated by a demonstration of prevention analysis programs in serious fire risk areas within the kraia. The EPT Project hosted a delegation of two US Forest Service fire specialists, Cathy Scofield and Al Murphy, who worked for two weeks in Khabarovskii kraia in August, 1995.

This program provided for familiarization with the fire prevention programs for high risk fire areas in Padalinsky, Gursky, and Komsomolsky leskhozoes with subsequent evaluation and recommendations. Additionally, a one day fire prevention seminar was sponsored by the EPT Project and conducted by the USFS specialists. The audience for the educational opportunity numbered 25 participants from various leskhozoes and included forestry officials at various organizational levels and technical specialists with the government organizations. The key accomplishments of the semi-

nar included 1) sharing the concepts of a basic fire protection program, 2) introducing the students to a fire protection analysis and planning process, 3) sharing ideas on how to build upon existing fire protection programs, and 4) conducting an interactive workshop by generating discussions. Basic ideas presented to the audience included fire protection categories and strategies for implementation, the students were taught how to conduct the fire protection assessment and develop the fire protection plan as well as budgeting issues.



The Impact

The discussion at the seminar revealed both positive aspects of the Russian fire prevention program and its weak points. The recommendations provided by the instructors specifically pointed out the following: 1) the need to look for more effective ways of fire detection with the use of small aircraft; 2) attraction of a national logo symbolizing fire prevention effort kraia-wide; 3) the need for better communication and information exchange between leskhozoes; 4) prioritizing public involvement and education effort among various strata of local communities; and 5) more emphasis on reforestation and clearing timber slash at logging sites.

A number of handouts translated into Russian were presented to the participants. The audience, with a very limited knowledge of the US fire prevention techniques and management procedures, was exposed to new ideas and approaches. The seminar allowed the Russian fire specialists to elaborate their draft fire prevention and analysis programs for two high risk fire areas in the Khabarovskii kraia: Padalinsky and Evoronsky leskhozoes.

Key Personnel:

Vladimir Pominov, Head, Khabarovskii Krai RFFS
Vladimir Kozomysov, Deputy Chief, Khabarovskii Krai RFFS
Natalia Puzychina, Chief, Forest Protection Service
Igor Sushkov, Khabarovskii Krai RFFS

Pete Owston, USDA Forest Service/EPT Liaison
Wayne Busard, USDA Forest Service, 2nd Coordinator
Al Murphy, USDA Forest Service, Washington, DC
Cathy Scofield, USDA Forest Service, Washington, DC

Environmental Policy and Technology Project



Environmental Policy and Technology Project

Russian Far East Sustainable Natural Resources Project

Khabarovsk Field Office

IMPACT STATEMENT

Fire Fighting Study Tour

April - May, 1996

Situation

Over the last five decades there have been about 30 thousand wildland fires in Khabarovsk krai which have devastated a huge territory of over 6,000 hectares. During the last 28 years over 90 million cubic meters of timber have been burned away. During 1996 alone the damage incurred by wildland fires to Khabarovsk krai totaled approximately 100 billion rubles.

Combined with the critical financial situation the Russian Federal Forest Service (RFFS) faces, a true threat is levied against the vast areas of the Russian Far Eastern Taiga.

With this in mind a very significant problem is present that is how to save the forests and protect it at an affordable cost. This can be accomplished by improved training and by using a more advanced approach to the challenge of wild fire fighting.

Our Response

The Environmental Policy and Technology (EPT) Project working with partner organization the US Forest Service

(USFS) sponsored a one month study tour of 6 firefighters from Khabarovsk Krai to the United States. The goal of the tour was to demonstrate the equipment available to the USFS as well as to train, educate and introduce Russian participants to new approaches in wildland fire control. Prior to the trip there were quite a number of US consultants that came to the Russian Far East to evaluate and assess Russian needs. This pre-tour work helped to develop an itinerary to exceed all expectations.

Representatives from both organizations that fight forest fires in Khabarovskii krai were selected from AVIALESOOKHRANA (Fire Aviation) and from the RFFS. Khabarovskii krai RFFS Chief Engineer Vasily

Rabsky, Directors of Gursky and Avansky Leskhoz; Victor Korobkov and Nikolai Babarykin, Director of Fire Aviation; Alexander Lyubyakin, Chief of Komsomolsk Subbase; Victor Vorontsov and Chief of Smoke jumpers and rapellers department Yuri Serykh participated in the educational opportunity. Incidentally, Victor Korobkov is from a Leskhoz where fires are frequent and damages are severe. He spends most of the summer as an incident commander on area fires.



The Impact

During the trip the delegation was able to see joint efforts of various agencies that are responsible for protecting forests: National State private and Tribal Lands. Teamwork and close coordination of the efforts as well as centralized control and support for fire fighting operations on a nation wide scale greatly impressed Russian firefighters. No doubt the amount of equipment, its condition and readiness to be deployed anywhere the need arises

was a shock. But in the long run it was not the technical superiority or strategic and tactical planning that made the deepest imprint. It was the pride and glory that accompany firefighters profession. This is due to effective work performed by public relations divisions which do not currently exist in Russia. The unanimous opinion was that these divisions should be set up within the Russian Forest Service, whose efforts in prevention and education activities can not be overestimated. The team developed the idea for a tiger cub (his name is yet to be defined) who could be Smoky's Russian counterpart in the effort to educate the public about wildfires.

Key Personnel:

Wayne Bushnell, Fire Specialist, Alaska, USFS
Roger Sullivan, Office Manager, EPT, Khabarovsk

Cathy Scofield, Fire Specialist, Alaska, USFS
Kathy Kane, Fire Specialist, Alaska, USFS



Environmental Policy and Technology Project

Russian Far East Sustainable Natural Resources Project

Khabarovsk Field Office

IMPACT STATEMENT

Fire Suppression and Management Seminar

October 1996, Khabarovskii Krai

Situation

Khabarovskii krai is one of the most fire active regions in Russia and has had years when half of the acres burnt in Russia occurred there. Needless to say, fire is taken very seriously throughout the area. The Forestry Administration of the krai has 54 million hector under protection, comprised of 54 leskhozoes. Economic conditions have impacted this area and they had to reduce aircraft and aerial fire fighters to a level that does not appear to be meeting the fire needs. More responsibility and suppression action is now taken by leskhozoes personnel, whose main mission is fire protection. The situation found its reflection in a cooperative US-Russian effort to provide assistance in the area of fire suppression and management currently most critical for the Russian side.

Our Response

The Environmental Policy and Technology (EPT) Project working in close cooperation with the US Forest Service (USFS) hosted a delegation of two USFS fire fighting delegations targeted for two-week working mission in both Primorskii and Khabarovskii kraii in September-October, 1996. The purpose of the first group, led by Larry R. Swan was carry out a fire information management assessment with the appropriate agencies and review of the existing data and materials in both kraii. The second group, led by Andrew Parker, focused on fire suppression methods and needs of the Russian side in training requirements on engines, dozers, hydraulics and tactics. Both groups conducted a one-day seminar in the Russian Federal Forest Service (RFFS) training center located in Sosnovka. Those in attendance (25 total) were fire personnel from the surrounding leskhozoes and

aerial fire service. The seminar started with presentations and ended in a dynamic information exchange between the educators and the audience. Marion Villasenor and Tim Sexton answered questions regarding forest dispatching, fire planning and fire behavior prediction systems. Each walked through examples and the presentations were well received. After lunch Steve Ziel and Steve Morfield gave presentations on the Incident Command System and fire training systems in the USA. Discussions illustrated the US training standards and qualification system for wildland fire



The Impact

The deputy chief of the Khabarovskii krai RFFS Administration Vladimir Kolomytsev and director of the krai aerial fire service Alexander Lyubyakin who were present at the opening expressed their appreciation and support of the many exchanges and programs that have brought US and Russian fire managers together. Based on the results of their personal observations and numerous Russian fire personnel views of the fire situation and needs, the US fire specialists came up with the following recommendations: 1) need for continued emphasis and education in fire prevention, 2) more aerial fire fighters and airplane patrols, 3) upgrading radio communication systems and equipment, 4) more equipment such as dozers, leaf blowers and hand tools, 5) training programs in fire suppression techniques, fire behavior and weather. The findings of the teams were incorporated into basic training courses that fit RFE suppression tactics and needs. An interesting side note from the attending journalist was that "wholesome and healthy people work in the woods. forest fire suppression is a new topic with great potential interest and relation to non-forest oriented people."

Key Personnel:

- | | |
|---|---|
| Vladimir Kolomytsev, Deputy Chief, Khab. Krai RFFS | William E. Schlosser, EPT RFE Chief Forester, Khab. |
| Alexander Lyubyakin, Chief of Forest Protection Service, Khab. Krai | Pat Owsen, USDA Forest Service EPT Liaison |
| Igor Shteyn, Khabarovsk EPT Office Manager | Wayne Bushnell, USDA Forest Service Cost & Administration |
| Lidi Volkova, Program Support Specialist, EPT Khab. | Larry R. Swan, USFS Fire Management Specialist, Khab. |
| Andrew Parker, USFS Project Leader, Redmond, Oregon | Marion Villasenor, USFS Fire Planner, Seaside, Oregon |
| Tim Sexton, USFS Fire Ecologist, Clatskanie, Oregon | Steve Ziel, USFS Assistant Fire Manager, Clatskanie, Oregon |



Environmental Policy and Technology Project

Russian Far East Sustainable Natural Resources Project

Khabarovsk Field Office

IMPACT STATEMENT

Fire Truck Delivery

Khabarovskii krai, 1997

Situation

The Russian Far East is impacted by devastating wild fires each year. These fires are a combination of natural occurrences (lightning fires) and man caused fires. They reduce forest productivity, affect wildlife habitat and threaten villages and towns. The Russian Federal Forest Service (RFFS) fights these fires through a combination of ground and air forces. Fire fighting equipment that utilizes the newest in fire fighting technology is desperately needed in the Russian Far East to gain an upper hand in the protection of the Russian forests.

Our Response

The Environmental Policy and Technology (EPT) Project working closely with the Khabarovskii Krai RFFS and the US Forest Service (USFS) identified the need for additional ground fire fighting trucks capable of carrying 1500 liters of water, fire hose, 8 crew members and hand tools to act as an initial attack force in fighting forest fires.

Designs were made for the new trucks in a combined effort of the EPT Project, the US Forest Service and the RFFS and built by a Russian company. The first 2 of 4 fire trucks were delivered to the RFFS in a ceremony March 6, 1997 at Sosnovka (the Khabarovskii Krai RFFS Training Center). EPT Chief Forester William E. Schlosser, delivered the first new fire truck to the Director of Mukhen Leskhoz, Alexander Ermakov and the second to the Director of Sukpaiskii Leskhoz, Alexander Frolenkov. Certificates of delivery of the equipment were given to each Leskhoz and to the RFFS director, Vladimir Pominov.

The Impact

Both of these new fire trucks were delivered to Leskhoz where there are currently no fire fighting trucks available to fight against annual wildfire losses. When asked what impact the addition of one fire truck would have to his Leskhoz, the Sukpaiskii Leskhoz director responded, "For those of us in the village of Sukpai the difference is hope, until now we were at the full mercy of the forest fires, now we have a chance to protect the forest and protect our natural resources. When I arrive in Sukpai I will turn on all of the lights, the siren, and announce over the loud speaker that the Americans have sent us a new truck and that fire should beware!"

The Director of the Khabarovskii Krai RFFS Vladimir Pominov stated that the addition of these fire trucks to the region is significant because it gives the region the ability to gain an upper hand in fighting against the annual losses due to wild fires in the region. He points out that many of the fires in the region are man caused and generally near roads, recreation sites, and villages.

He said that the trucks would be used in the off fire times to drive through these areas on patrol and use the loud speakers to warn campers and picnickers to put out their fires and be careful about their camp sites. He said they would also hand out informational flyers to the public from the trucks on the need to be a part of the effort in controlling wild fires.

Two additional fire trucks are to be delivered to the Khabarovskii Krai RFFS from EPT during 1997 where they will be placed in two additional Leskhoz in the region.



Key Personnel:

Vladimir Pominov, Head, Khabarovskii Krai RFFS
William E. Schlosser, EPT/RFE Chief Forester
Wayne Bushnell, USDA Forest Service
Alexander Ermakov, Director of Mukhenski Leskhoz

William E. Schlosser, EPT/RFE Chief Forester
Wayne Bushnell, USDA Forest Service
Alexander Ermakov, Director of Mukhenski Leskhoz



Environmental Policy and Technology Project

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IMPACT STATEMENT

Fire Fighting Study Tour

May 1997

Situation

Decreased budgets and overall economic difficulties within the Russian Federation have taken a serious toll on the ability of forest and fire management to succeed Primorskii krai is small in comparison to other regions of Russia and the forest fire incidence there does not contribute to its competing successfully for the funding. Reduced number of smoke-jumpers and rappellers combined with a shortages of aircraft and fuel for patrol flights have resulted in ground forces from leskhozoes taking the major responsibility for forest fire suppression in the krai. Due to these circumstances, priorities for fire management in Primorskii krai are as follows: improved fire prevention education, improved radio communication, increased number of trained fire fighters, purchase of additional aircraft, and an increased number of aenal fire patrols.

Our Response

During May 1997 the Environmental Policy and Technology (EPT) Project led by partner organization the US Forest Service (USFS) organized a three-week study tour in the US for representatives of the two organizations in Primorskii krai playing a major role in fighting forest fires. The composition of the group was 50% people from the fire aviation units and 50% from the Russian Federal Forest Service of Primorskii krai. The trip's agenda was of mutual interest to representatives of both departments.

The main objective of the tour was for the trainees to get information about US fire protection programs from regions covered with forests similar to those in Primorskii krai and having about the same density of the population. Three US states were targeted in the agenda: Idaho, Minnesota and Alaska.

The Impact

The study tour was a complete success from the standpoint of enhancing Russian specialist's understanding of the American fire management system and through extrapolation of the US situation to the Russian situation.

The team members were greatly impressed with the fire

management facilities they observed. They learned from the opportunity to witness operations of interagency fire centers which could be compared to Russia's Ministry for Emergency Situations divisions. The coordination centers maintain a high profile in forest fire fighting work by providing close communications to all participants.

The trainees from Russia had the opportunity to talk to various people in charge of resources mobilization – from directors to dispatchers and to see the jobs everybody completed and the operations of a proficient system. The

study group members could not help being envious of the fire-fighting tools and equipment they were shown at the equipment caches kept there in perfect order and in a state of full preparedness. Pavel Nedovizii was happy to get a Pulaski tool which he took back home as sample. He hopes that the tool will assist him and the people in his leskhoz in their future fire suppression efforts as they replicate it and put it to use.

Unfortunately, as everybody repeated during the trip, the lack of adequate funding for forest fires management in Russia in general, and in Primorskii krai in particular, has resulted in a current situation

where fire aviation cannot afford to make patrol flights, let alone put out fires.

The team experienced the role of prescribed fire in the USA. Primorskii krai fire management had viewed all fires as bad, however, they learned the conditions of its use and the inherent value of maintaining the components of a natural ecosystem as represented by prescribed fires.

The facilities and equipment of the US fire fighting effort made a deep impression on the trainees from Russia, however, the dedication of the people working at various departments of the USFS, at interagency centers, etc. did more to show the team how the work of these agencies could make a significant difference in the fire fighting effort of the USA. The travelers could not help admiring the openness, friendliness and eagerness to share experience with the guests from Russia. The Russian study group was extremely grateful to the American hosts who did an excellent job of meeting logistical and informational needs.



Key Personnel:

Wayne Bushnell, USFS Fire Specialist, Alaska, USFS
William E. Schlosser, EPT, RFE Chief Forester
PGK-Quason, USDA Forest Service/EPT Liaison

Anatoly Prikhodko, Chief, Primorskii krai RFFS
Nikolai Danos, EPT/FIRE Project Coordinator, Vladivostok
Lich Volkov, Program Support Specialist, EPT Liaison



Environmental Policy and Technology Project

Russian Far East Sustainable Natural Resources Project

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IMPACT STATEMENT

Task 22 Reforestation

The reforestation program of the RFE EPT Project has met and exceeded all expectations. The new technologies, equipment, trained professionals, and operations represented by this task have changed the concept of what is possible to accomplish in Russia in terms of reforestation. Accomplishments of this task were led by the EPT RFE Chief Forester through a partnership with the US Forest Service and the Russian Federal Forest Service in Khabarovskii and Primorskii Krai.

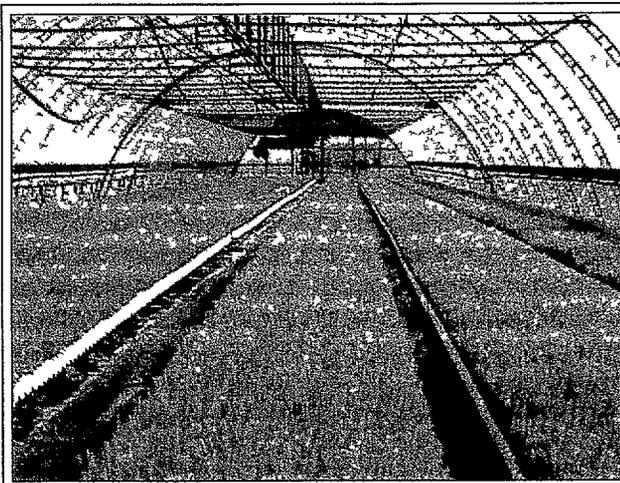
Training programs were identified as the most appropriate means to accomplish the goal of developing a greenhouse facility for the Russian Far East. The first of the US based training programs was initiated in the spring of 1996 and hosted by the US Forest Service. Four Russian scientists from Khabarovsk Krai traveled to the USA for a one month study tour of US greenhouse technology management and training.

The second training program to the USA focused on forest genetics and the principles of improving the genetics of seed provided to the greenhouse complexes. In the spring of 1997 seven Russian scientists traveled to the USA for a one month training tour. The results were seen immediately as the two teams (one from Primorskii and one from Khabarovskii Krai) were put to the task of completing seed zone maps for Korean Pine, larch, and spruce. Not only were the seed zone maps completed, but aggressive plans were made to develop three seed orchards in the region through a cooperative program between the RFFS in the two kraii and EPT.

An international conference was sponsored by EPT, The Far Eastern Forestry Institute of Khabarovsk, and the Russian Federal Forest Service in the fall of 1996. The "Korean Pine - Broadleaved Forests of the Far East International Conference" attracted over 100 scientists from around the world. More than 112 reports

were presented with 12 papers by the most eminent international authorities on the issues. The proceedings of the conference are currently being published through a cooperative effort of the EPT project and the US Forest Service.

The renovation of seed bank facilities has been exceptionally successful. The Sosnovka Seed Breeding Facility (home of the Nekrasovka Greenhouse Complex) houses Russia's first world class seed extractory. The equipment provided by EPT includes a production based seed scalper, seed sorter, seed moisture meters, and a seed separator to clean and process seed prior to storage. Training was provided by US Forest Service consultants and has changed how the RFFS processes their annual seed harvest. Additionally through increased seed recovery practices the annual amount of seed required has actually decreased (even though the number of greenhouses has increased).



The EPT project delivered and made operational the first freezer and cooler complex for reforestation efforts in Russia. The freezer and cooler units have a capacity of 425 m³. The freezer can hold enough seed for up to 10 years of greenhouse sowing while the cooler will store seedlings over winter and into the spring to facilitate improved planting. The entire storage facility is supported by a back-up power generator and on-site facilities manager to oversee operations.

The changes represented at the two greenhouse complexes (Gursky and Nekrasovka) are truly remarkable. The production from the Nekrasovka greenhouse complex in 1995 (prior to implementation of improved management practices) was 6,000 seedlings. That number grew to 300,000 seedlings after just one year (1996). The same improvement was seen at the Gursky Greenhouse Complex where in 1995 they grew to full

Continued

Task Summary

Page 1 of 2

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size only 500 seedlings. After the first year their production increased to 120,000 seedlings. In 1997, the combined production of seedlings from the two greenhouse complexes will exceed 1.2 million seedlings as a direct result of the EPT reforestation program.

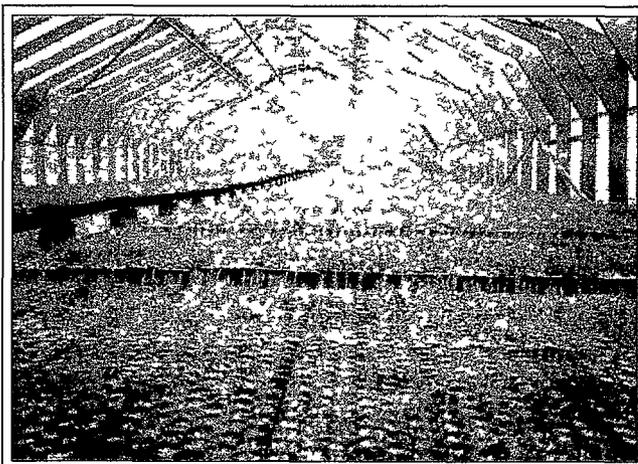
To achieve these remarkable accomplishments the EPT project led an aggressive program of equipment procurement and installation. The equipment delivered to the two greenhouse complexes includes:

- 1 Two newly designed 60 m x 10 m greenhouses
- 2 Three retrofitted Russian Greenhouses
- 3 Three redesigned Russian Greenhouses
- 4 One prototype greenhouse used for testing and experimentation
- 5 Ventilation fans, louvers, shutters
- 6 Thermostats
- 7 Blower Tubes and strapping
- 8 Electric Water Pump
- 9 Water Filter-Fertilizer Injector Systems
- 10 Spray Nozzles and T-adapters
- 11 Hanging Irrigation Systems
- 12 Seedling Containers
- 13 Shade Cloth
- 14 Side wall Netting
- 15 Poly Covering for Greenhouses
- 16 Soil thermometers
- 17 Min/Max thermometers
- 18 Hand magnifying lenses
- 19 Hygrothermographs
- 20 Measuring containers
- 21 Hygrometers
- 22 pHYDRION papers
- 23 Conductivity Meters
- 24 Purlite
- 25 Fertilizers
- 26 Peat moss and shredder
- 27 Seed sowing line
- 28 Water well
- 29 Tree planting tools
- 30 Tree Planting Bags

The delivery of this extensive list of equipment was accomplished through the shipping of seven 40 foot containers from the USA and western Russia. Once

on site, the equipment was installed and made operational by the EPT RFE Chief Forester, EPT staff, USFS Consultants, manufacturer representatives, and Russian Federal Forest Service personnel. Training the Russian staff in the operations of all of this equipment was the priority during the first season of operations.

This equipment has made it possible to take the cleaned seed from the seed extractory in Nekrasovka, combine it with high quality processed peat moss loaded into superior seedling containers, sow them efficiently (using the new seed sowing line), and place the containers into efficient, operational greenhouses. The design of the greenhouses is superior in that they allow for a modification of the growing environments to suit the needs of the seedlings. The irrigation equipment, water filtration equipment, fertilizers, and additional technologies allow for healthy, vigorous seedlings to be produced. When the improved technologies are combined with the increased training received



by the greenhouse managers in the Russian Federal Forest Service, the result is two world class greenhouse complexes in the Russian Far East to meet the demands of seedling production.

The production of 1.2 million seedlings is substantial, especially in light of the production numbers from just 3 years ago. However, the annual demand for containerized seedlings is approximately 10 million

seedlings in the region. The facilities EPT has assisted will have this capacity as greenhouse numbers are increased, however, managed facilities growth, an understanding of market conditions affecting seedling production, and business management must be better understood for the RFFS to operate these facilities successfully. The EPT RFE Chief Forester, working as a partner with the RFFS Chief Economist, has completed an analysis of options for the RFFS to operate the complexes as a commercial enterprise in the management of the greenhouses, nursery beds, seed extractory, and distribution of seedlings. This work will continue as the EPT led team develops an expansion plan for the complexes that addresses financial feasibility in light of economic realities.



Environmental Policy and Technology Project

Russian Far East Sustainable Natural Resources Project

Khabarovsk Field Office

IMPACT STATEMENT

Greenhouse Design and Retrofitting

1996

Gurski, Khabarovskii Krai

Situation

Immense fires, timber harvesting, and wind storms all combine to create a dire need for quality conifer seedlings in the Russian Far East (RFE). Without tree regeneration soils erode, wildlife habitat is reduced, and the region's future economic viability is severely limited. Successful conifer regeneration is paramount to successful forest management. Efforts to produce quality seedlings that will thrive in the forests of the region have been met with challenges in terms of funding, technology and trained personnel. The need to grow quality container and bareroot seedlings in the region is evident.

Our Response

The Environmental Policy and Technology (EPT) Project in cooperation with a US Peace Corps volunteer working closely with the Khabarovskii Krai Russian Federal Forest Service (RFFS) implemented a very aggressive greenhouse technology update program during 1996. The program consisted of a US training tour for 4 Russian greenhouse managers in March and April, a consulting tour by 3 US specialists in April and May, a full time

US Peace Corps volunteer at the RFFS Gurski Leskhoz Greenhouse site and an EPT funded on-site greenhouse operations specialist in the RFE from April through September, the retrofitting of one greenhouse at the beginning of the season and the retrofitting of two additional greenhouses, all in Gurski.

Additionally, the EPT project provided much needed fertilizer for growing the seedlings as well as tools and equipment to build and maintain the facilities at the Gurski Greenhouse site. Monthly consulting trips to Gurski by Svend Pung, EPT greenhouse specialist, and consultation by USDA Forest Service personnel assisted the facility in developing watering and fertilizer regimes suited to the facility and species grown.

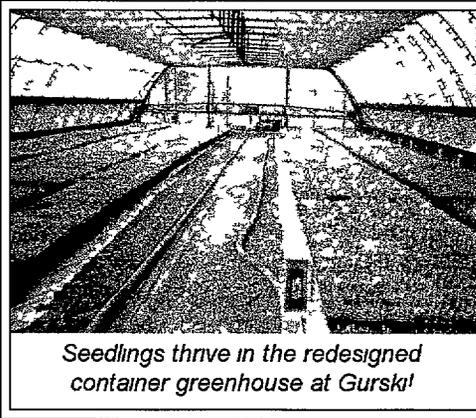
The Impact

During 1995 the Gurski greenhouse complex consisting of 1 container greenhouse yielded 500 seedlings that met the Russian standard of an acceptable seedling for outplanting to forest sites. As a result of the cooperative program led by EPT, the RFFS, and the US Peace Corps the production from the retrofitted container greenhouse exceeded 120,000 seedlings this year alone!

The increase in production was largely due to the synergistic combination of daily work on the site by Brian Keating, US Peace Corps volunteer, Anatoly Troshin, the greenhouse manager trained by the USDA Forest

Service and a concerted effort by all of the greenhouse staff. Additionally, support from the highest levels of the Khabarovskii Krai RFFS administration guaranteed that needed support was made available.

An EPT sponsored team of experts worked with the Gurski Leskhoz staff to retrofit the existing greenhouse design to be better suited to container seedling production. This monumental undertaking utilized the combined efforts of Peace Corps Volunteer



Seedlings thrive in the redesigned container greenhouse at Gurski!

Brian Keating, EPT consultants John Bartok and Svend Pung, EPT Chief Forester William E. Schlosser, RFFS Head Forester Vladimir Pominov, RFFS Deputy Chief Vladimir Kolomytsav, and Gurski Greenhouse Manager Anatoly Troshin to redesign the existing operations completely. The new greenhouse design was then used to retrofit an additional two greenhouses on the same site. Plus, the retrofitted greenhouses are all covered with US produced plastic that lasts up to 4 years as opposed to Russian plastic that lasts less than one season.

As we move into the 1997 growing season, the Gurski Leskhoz greenhouse complex will have the capacity to produce over 475,000 high quality container seedlings for regenerating the forests of the region.

Key Personnel:

Vladimir Pominov, Head, Khabarovskii Krai RFFS
Vladimir Kolomytsav, Deputy Chief, Khab. Krai RFFS
Anatoly Troshin, Manager, Gurski Greenhouse Complex
Evgeny Polovnikov, Chief Forester, Gurski Leskhoz
Victor Korobkov, Director, of Gurski Leskhoz
Brian Keating, US Peace Corps Volunteer in Gurski
Igor Shitsky, Khabarovsk EPT Office Manager

William E. Schlosser, EPT/RFE Chief Forester
Pete Owston, USDA Forest Service/EPT Liaison
Svend Pung, EPT Greenhouse Operations Specialist
Joe Myers, USDA Forest Service
Chad Converse, USDA Forest Service
John Bartok, University of Connecticut, EPT Consultant
John Scholtes, USDA Forest Service



Environmental Policy and Technology Project

Russian Far East Sustainable Natural Resources Project

Khabarovsk Field Office

IMPACT STATEMENT

Greenhouse Design and Construction

1996

Nekrasovka, Khabarovskii krai

Situation

Immense fires, timber harvesting, and wind storms all combine to create a dire need for quality conifer seedlings in the Russian Far East (RFE). Without tree regeneration soils erode, wildlife habitat is reduced, and the region's future economic viability is severely limited. Successful conifer regeneration is paramount to successful forest management. Efforts to produce quality seedlings that will thrive in the forests of the region have been met with challenges in terms of funding, technology, and trained personnel. The need to grow quality container and bareroot seedlings in the region is evident.

Our Response

The Environmental Policy and Technology (EPT) Project working closely with the Khabarovskii Krai Russian Federal Forest Service (RFFS) implemented a very aggressive greenhouse technology update program during 1996. The program consisted of a US training tour for 4 Russian greenhouse managers in March and April, a consulting tour by 3 US specialists in April and May, an EPT funded on-site greenhouse

operations specialist on site in the RFE from April through September, the retrofitting of one greenhouse and the building of a prototype greenhouse both in Nekrasovka, and the construction of a full size greenhouse based on the prototype model.

Additionally, the EPT project provided much needed fertilizer for the growing seedlings as well as tools and equipment to build and maintain the facilities at the RFFS Seed Breeding Center. Finally, construction designs and technology for the retrofitting of two remaining greenhouse structures was provided for the RFFS to continue to retrofit existing greenhouse structures.

The Impact

During 1995 the 2 container greenhouses and one bareroot greenhouse in Nekrasovka yielded 6,000 seedlings. As a result of the cooperative program led by EPT and the RFFS, the production from the two full size container greenhouses exceeded 300,000 seedlings this year alone!

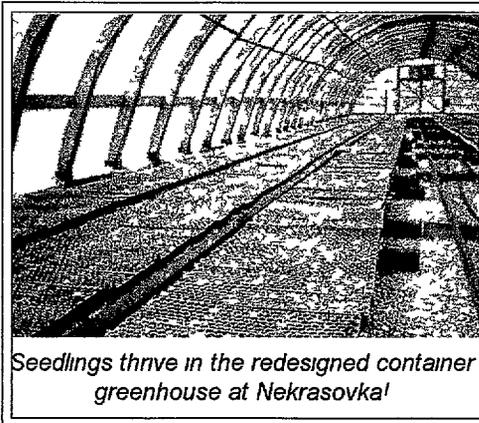
The increase in production was largely due to the synergistic combination of daily work on the site by Svend Pung, EPT specialist, Sergey Butin, greenhouse manager trained through the USDA Forest Service, and a concerted effort by all of the greenhouse staff. Additionally, support from the highest levels of the Khabarovskii Krai RFFS administration guaranteed that needed support was available.

The construction of a new design prototype greenhouse at the beginning of the season created a spirit of cooperation that led to the construction of a 60 meter greenhouse in October 1996.

This monumental undertaking utilized the combined efforts of EPT consultant John Bartok, EPT specialist Svend Pung, EPT Chief Forester William E. Schlosser, RFFS Head Forester

Vladimir Pominov, RFFS Deputy Chief Vladimir Kolomytsav, and Nekrasovka Seed Breeding Center Chief Forester Sergey Butin to design a site to accommodate 9 additional greenhouses and build the first in the series. The new design uses approximately 30% of the lumber of the RFFS model and takes only 40% of the time to construct. Plus, the retrofitted greenhouse and the two new greenhouses are covered with US plastic that lasts up to 4 years as opposed to current plastic that lasts less than one.

As we move into 1997, the Nekrasovka Seed Breeding Center has the capacity to produce over 500,000 high quality container seedlings for regenerating the forests of the region.



Seedlings thrive in the redesigned container greenhouse at Nekrasovka!

Key Personnel:

Vladimir Pominov, Head, Khabarovskii Krai RFFS
Vladimir Kolomytsav, Deputy Chief, Khab. Krai RFFS
Sergey Butin, Chief Forester, RFFS Seed Breeding Center
Yurri Kynsh, Director of RFFS Seed Breeding Center
Nicolai Syonkov, Chief of Seed Breeding Laboratory
Igor Snitsky, Khabarovsk EPT Office Manager

William E. Schlosser, EPT/RFE Chief Forester
Pete Owston, USDA Forest Service/EPT Liaison
Svend Pung, EPT Greenhouse Operations Specialist
Joe Myers, USDA Forest Service
Chad Converse, USDA Forest Service
John Bartok, University of Connecticut, EPT Consultant
John Scholtes, USDA Forest Service



Environmental Policy and Technology Project

*Russian Far East Sustainable Natural Resources Project
Khabarovsk Field Office*

IMPACT STATEMENT

New Greenhouses in Nekrasovka

Nekrasovka greenhouse complex, 1996-97

Situation

Greenhouses are used to grow high quality tree seedlings needed for reforestation. Seedlings grown in greenhouses are more viable and their survival rate after out-planting is high. This opens up new vistas in the field of reforestation. The RFE faces a challenge in designing and building greenhouses suited to the harsh climate found here. Russian designs have proved costly and cumbersome to construct. New designs accompanied by construction technology are needed.

Our Response

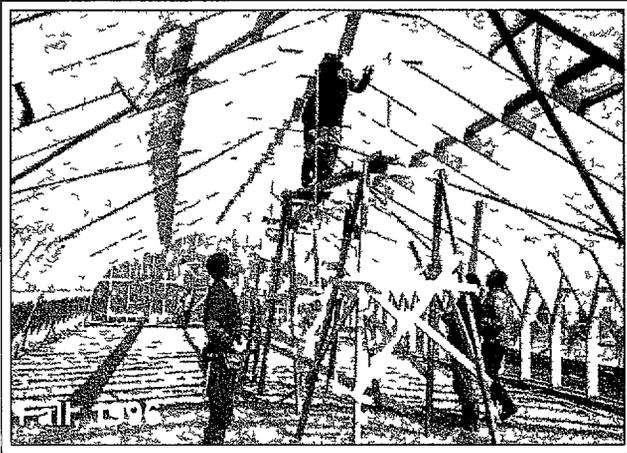
Two new greenhouses were added to the world network of conifer species production in the spring of 1997 at the Khabarovskii krai Russian Federal Forest Service Nekrasovka greenhouse complex. The EPT

The construction began with the erection of a prototype model in the spring of 1996. During the fall of 1996, the team built the foundation and constructed the wooden frames for the full size greenhouses. As soon as the snow melted in the spring of 1997 the team covered the arches with poly covering, installed irrigation equipment and other new technologically advanced equipment. In May 1997, the new greenhouses were filled with seedling containers.

The plastic, polytube, sidewall netting, and other materials were provided by the EPT Project. The new design utilizes a roll-up sidewall that saves energy and improves seedling vigor.

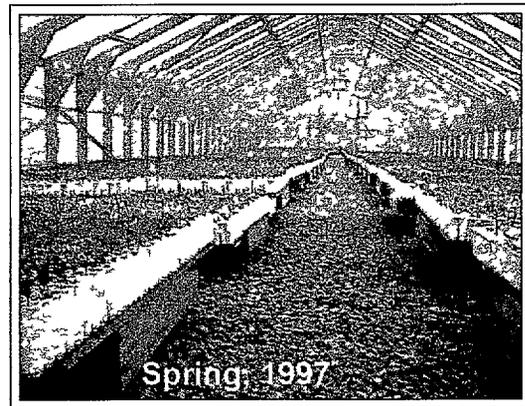
The Impact

Each newly designed and built greenhouse in Nekrasovka has the potential to grow 275 000 seedlings annually. The two new greenhouses in combination with the older ones in Nekrasovka and Gurski are now operating as state-of-the-art nurseries for growing containerized seedlings, so far an unprecedented endeavor throughout RFFS facilities. Production from the four



Project working closely with the Khabarovskii krai RFFS built and supplied technological equipment for the newly designed greenhouses (each 10m X 60m).

EPT consultant John Bartok, Extension Agricultural Engineer, University of Connecticut provided technical assistance and designs for building the two new greenhouses. Led by Bartok, a team of RFFS laborers built the greenhouse frames in a little over a month's time in the fall of 1996. The wood frame design has a number of advantages as compared with steel-frame greenhouses: it is more rigid and easier to work on, and the wooden frames do not rust like steel frames.



operational greenhouses in Nekrasovka, the two new ones included, is expected to be approximately 400 000 larch and 150 000 Korean pine seedlings during 1997. The young trees will be stored in the freezer and cooler facility during the coming winter and will be distributed among leskhozoes next spring for out-planting. This effort will help to meet the needs for reforestation work in Khabarovskii krai.

Key Personnel:

William E. Schlosser, EPT/RFE Chief Forester
John Bartok, University of Connecticut
Pete Owston, USDA Forest Service/EPT Liaison
Igor Snitsky, Khabarovsk EPT Office Manager

Vladimir Pominov, Chief, Khabarovskii krai RFFS
Vladimir Kolomytsev, Deputy Chief, Khab' krai RFFS
Sergei Butin, Chief Forester, RFFS Seed Breeding Center
Nikolai Sychnov, Greenhouse Complex Manager, RFFS



Environmental Policy and Technology Project

Russian Far East Sustainable Natural Resources Project

Khabarovsk Field Office

IMPACT STATEMENT

Seed Processing Equipment

Sosnovka Seed Extractory and Storage Facility, 1997

Situation

Successful regeneration of conifer species in the forests of the Russian Far East (RFE) is paramount to successful forest management. Efforts to produce quality and genetically superior seedlings that will thrive in the forests of the region have been met with challenges in terms of funding, technology, and trained personnel. The starting point for a successful container seedling operation is the ability to select superior seeds for regeneration efforts.

Our Response

The RFE Environmental Policy and Technology Project (EPT) in cooperation with the Russian Federal Forest Service (RFFS) and the US Forest Service (USFS) developed and implemented an aggressive program on reforestation. Four units of seed processing equipment have been delivered and installed in the facilities of the Sosnovka Seed Breeding Center.

These are seed scalper separator, moisture meters and a seed sorter. Growing seedlings is a complicated process starting with the harvesting of

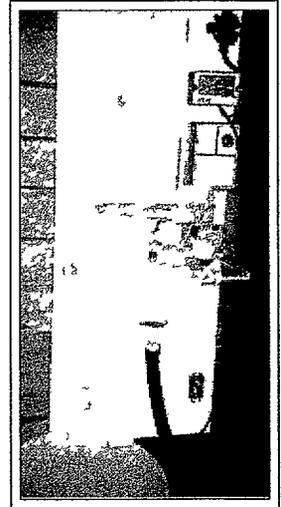
cones from genetically superior parent trees. Dewinged seeds go through a rough and fine cleaning and then are sorted and graded. The sorted seed is stored in a freezer until it is sown into greenhouses.

The Impact

By storing only viable high quality seed the RFFS saves money by needing less freezer space, fewer seeds, and drastically increasing the productivity of laborers at sowing time.

The seed scalper makes it possible to do the rough cleaning by removing dirt, needles, etc. The seed separator sorts seed by size and weight, therefore the high-

est quality seed received through such separation can be considered for the needs of container sowing while second and third grades are used by the leskhoz for aerial sowing of harvested or burned areas. The seed sorter verifies all seed batches to be sown in container greenhouse to determine the final percent of seed viability and therefore the corresponding number of seeds to be sown in each cell.



The use of this seed cleaning equipment in 1997 at the Nekrasovka greenhouse complex facilitated a 92% seed viability rate. This viability rate reduced the number of seeds needed per container cell from 8 to 2. This change alone reduced the time of seedling thinning from 1 month to only one week per greenhouse. A significant volume of would-be-wasted seed material is now saved to sow four times as many greenhouses annually.



Key Personnel:

William E. Schlosser, EPT/RFE Chief Forester

Joe Myers, USDA Forest Service

Pete Owston, USDA Forest Service/EPT Liaison

Igor Snitsky, Khabarovsk EPT Office Manager

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Sergei Butin, Chief Forester, RFFS Seed Breeding Center

Nikolai Sychkov, Greenhouse Complex Manager, RFFS



Environmental Policy and Technology Project

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IMPACT STATEMENT

Freezer and Cooler Complex

Sosnovka Seed Extractory and Storage Facility, 1997

Situation

Conifer forests in the RFE, and around the world, experience abundant seed crops only periodically. Larch trees, for example, may only produce a widely harvestable seed crop once every 7 years. In order to operate a continuous conifer regeneration program that is not dependant on annual seed crops, reforestation programs must have the ability to store cleaned seeds in freezers (-18° C) for periods of up to 10 years. Additionally, seedlings grown annually in greenhouses must be stored in a cooler (-2° C) through the winter and into the spring to minimize winter mortality and keep the trees dormant until out-planting site conditions are ideal. These facilities have not existed in Russia until now.



the site, as well as expanded greenhouse facilities at the nearby Nekrasovka Greenhouse Complex.

The Freezer unit is used to store seed collected from the RFE taiga and from seed breeding efforts at tree improvement centers. After the seed has been sorted and cleaned it is placed into the freezer where it can be held in dormancy. Seeds held in this environment can be stored for up to 10 years with little loss in viability.

The cooler side of the complex stores seedlings harvested from the greenhouse complexes. The seedlings are sorted and packaged before being stored in the cooler from October through May at approximately -2° centigrade. In the spring the seedlings will be taken to out-planting sites where they will fill their roll as the beginning of new

Our Response

The RFE Environmental Policy and Technology Project (EPT) working closely with partner organizations, the US Forest Service (USFS) and the Russian Federal Forest Service (RFFS), concentrated cooperative efforts on the introduction and installation of new cooler and freezer technology at the Sosnovka Seed Extractory and Storage Facility. In the spring of 1997 a fully operational freezer and cooler complex opened at the facility with the capacity to store up to 425 cubic meters of plant materials.

US consultants, Robert Conticelli and Michael Dixon worked on the equipment to make it operational and to train the RFFS in its use and maintenance.

The freezer and cooler complement seed extraction equipment delivered to

forests in the Russian Far East.

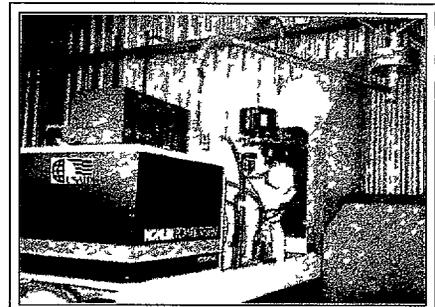
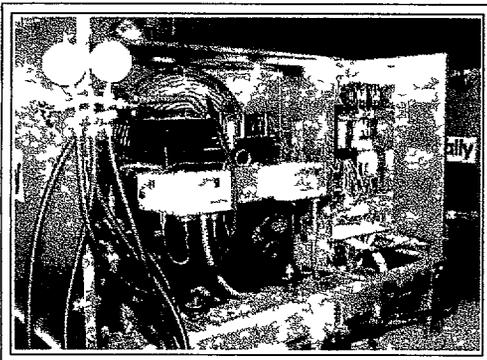
The facility is complemented by a backup power generator (*below-right*) to insure that the compressors (*below-left*) will always have power to operate the systems.

The Impact

Appropriate technology used for seed and seedling storage increases the probability of survival. This freezer and cooler complex is the first of its type in Russia and has set the stage for further growth of the Nekrasovka and Gursky greenhouse facilities.

Up to 10 years of seed can be stored, safely in this facility while annual seedling harvests from the greenhouses can be stored until planting conditions are perfect.

The capacity of this facility allows for the continued expansion of the greenhouse complexes in the region.



Key Personnel:

William E. Schlosser, EPT/RFE Chief Forester
Pete Owston, USDA Forest Service/EPT Liaison
Robert Conticelli, Whitestone Refrigeration, New York
Michael Dixon, Air-Dixon, Inc., Spokane, Washington
Joe Myers, USDA Forest Service, Coeur d'Alene, Idaho

Vladimir Pominov, Chief, Khabarovski krai RFFS
Vladimir Kolomytsev, Deputy Chief, Khab. krai RFFS
Yurri Knysh, Chief of Sosnovka Seed Breeding Center
Sergei Butin, Chief Forester, Sosnovka Seed Breeding Center
Igor Shitsky, Khabarovsk EPT Office Manager



Environmental Policy and Technology Project

Russian Far East Sustainable Natural Resources Project

Khabarovsk Field Office

IMPACT STATEMENT

Containerized Seedling Growing Media

Nekrasovka and Gursky Greenhouse Complexes, 1997

Situation

An integrated greenhouse facility requires all equipment processes, and procedures are matched perfectly in volume, results, and effect. The development of the Nekrasovka and Gursky Greenhouse Complexes have adhered to this principal during the 1996-97 expansion program. Seed processing equipment and storage facilities alongside improved sowing and growing facilities increased the production capability. However, the issue of growing media (peat moss and seedling containers) remained a problem for the team to address.

Our Response

The RFE Environmental Policy and Technology Project (EPT) working closely with partner organizations the US Forest Service (USFS) and the Russian Federal Forest Service (RFFS) developed and implemented a long term plan addressing the challenge of providing growing media and seedling containers for the seedlings.

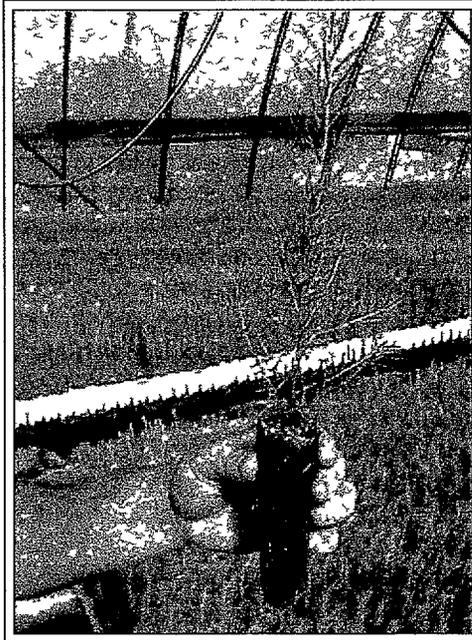
The Russian Far East possesses native peat moss. While it is not the high quality Spagnum peat moss of Northern Europe and North America, it can be used. During 1996, EPT specialist, Svend Pung, worked closely with the RFFS to identify remote locations that have peat moss suitable for harvest. Peat moss preparation is a very long process requiring harvest in the fall, drying and curing

for 12 months at a storage facility, and then shredding prior to storage for another winter before it can be used to fill seedling containers in the spring (20 months after harvest). The

RFFS harvested their first peat moss batch under this program of activities in 1996 but that meant that there would not be peat moss available for the greenhouse sites until the spring of 1998.

Growing media for 1997 was needed. In response, EPT located and purchased 112 cubic meters of peat moss from Western Russia. Additionally, EPT procured a US made fuel powered peat moss shredder to decompress and process raw peat moss (pictured bottom-right).

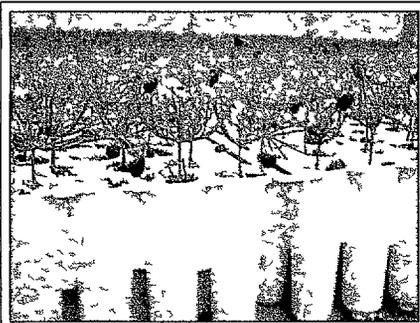
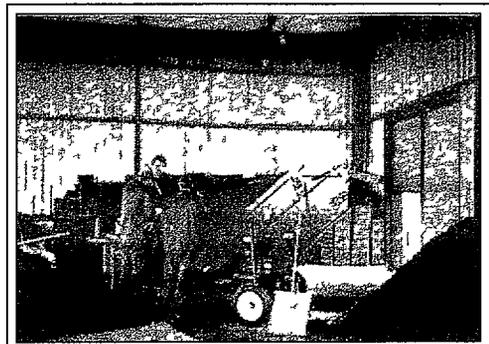
Additionally, EPT provided much needed seedling growing containers. The Russian made containers used at the facility lacked much of the technology needed to make the seedlings grow healthy and strong. The US made containers are deeper, have a larger exit hole for water, and have anti-spiral ridges preventing roots from twisting (pictured bottom-left with Korean pine).



The Impact

Peat moss, peat moss shredder, and 17,050 seedling containers provided by EPT prior to the 1997 sowing season are integral to the success of both the Gursky and the Nekrasovka greenhouse complexes. The RFFS is working with a local firm to replicate seedling containers in Russia for future expansion. The peat moss shredder is being used to prepare next year's peat moss. Additionally, crews are following EPT's recommendations by preparing peat moss for use in the 1999 growing season.

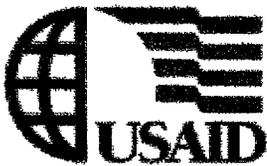
The integrated greenhouse facilities are making a real difference in the RFE.



Key Personnel:

William E. Schlosser, EPT/RFE Chief Forester
Pete Owston, USDA Forest Service/EPT Liaison
Joe Myers, USDA Forest Service, Coeur d'Alene, Idaho
Igor Snitsky, Khabarovsk EPT Office Manager

Vladimir Pominov, Chief, Khabarovsk Krai RFFS
Vladimir Kolomytsev, Deputy Chief, Khab. Krai RFFS
Sergei Butin, Chief Forester, RFFS Seed Breeding Center
Anatoly Troshin, Gursky Greenhouse Complex Manager



Environmental Policy and Technology Project

Russian Far East Sustainable Natural Resources Project

Khabarovsk Field Office

IMPACT STATEMENT

Seed Sowing Line

Nekrasovka Greenhouse Complex, 1997

Situation

In a container seedling greenhouse facility seeds, peatmoss and a top covering, are combined into seedling containers. Depending on seed viability anywhere from 2 to 10 seeds must be placed in each cell to insure that every cell grows a healthy seedling. In the past, this process has been completed by hand using non-mechanized tools at the RFE greenhouse complexes. Using the entire Sosnovka Seed Breeding Center staff (including secretaries) to fill seedling containers each spring the process was very time consuming. Each greenhouse took nearly half a month to complete. Since the optimal period for seed sowing each year is only a 6 week window of opportunity, the implication on the Nekrasovka facility was that they could only effectively grow seedlings in 3 greenhouses each year. The Nekrasovka complex must grow to at least 12 greenhouses to meet annual seedling needs.



Our Response

The Environmental Policy and Technology (EPT) Project, working closely with the Russian Federal Forest Service (RFFS) and the US Forest Service (USFS) designed and delivered a technologically advanced system of seed sowing during the spring of 1997. Shane Smith, Measured Marketing Company representative (manufacturer of the Gleason Sowing Line) accompanied the equipment to the Russian Far East to assemble and train the RFFS staff in its uses. His three week consultation included the installation and training for use of EconoPak Flat Filler, a Flat Belt Conveyor, a Top Dresser, a Dibbler, and Vacuum Seeder

The Impact

Four full-size greenhouses and two prototype greenhouses in Nekrasovka were sown with the use of the new sowing line provided by the EPT project. The entire sowing process was completed in just 2 weeks a 5 fold increase in productivity.

The increase in sowing quality represented by the use of this new technology is incredibly high. When completed by hand, the seeds were not sown as uniformly as desired and complications always followed. Peat moss density in the cells was not always uniform, and the depth of the dibble could not be guaranteed. By using the fully automated line the peat moss density in the cells is maintained, the dibble depth is uniform and the number of seeds in each cell is kept constant. Additionally an attachment to cover the seedling trays with a top coating insures that the containers are delivered to the greenhouse in top quality.

The installation of the seed sowing line makes it possible for the greenhouse complex to expand beyond today and into the future. This seed sowing line allows the complex to expand to approximately 10 to 12 full size greenhouses without adding additional capacity in seed sowing. Training in the use of the seed sowing line was accomplished through a combined effort of Shane Smith Measured Marketing, Joe Myers, USFS, and William Schlosser EPT Chief Forester. RFFS specialists learned how the operations of the sowing line worked and how to insure years of accurate seed sowing using the new technology.

Key Personnel:

William E. Schlosser, EPT/RFE Chief Forester
Joe Myers, USDA Forest Service, Coeur d'Alene, Idaho
Shane Smith, Measured Marketing, Portland, Oregon
Pete Owston, USDA Forest Service/EPT Liaison
Igor Snitsky, Khabarovsk EPT Office Manager

Vladimir Pominov, Chief, Khabarovsk Krai RFFS
Vladimir Kolomytsev, Deputy Chief, Khab. Krai RFFS
Yurii Knysh, Director, Sosnovka Seed Breeding Center
Sergei Butin, Chief Forester, Sosnovka Seed Breeding Center
Nikolai Sychkov, Greenhouse Complex Manager, RFFS



Environmental Policy and Technology Project

Russian Far East Sustainable Natural Resources Project

Khabarovsk Field Office

IMPACT STATEMENT

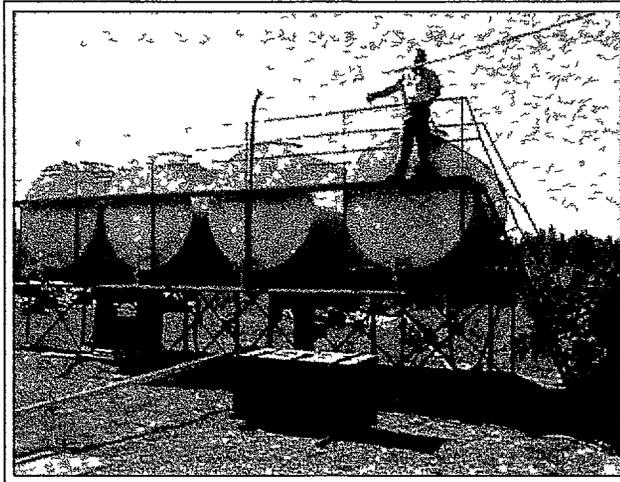
Water Supply Systems

Nekrasovka & Gursky Greenhouse Complexes, 1996-97

Situation

Two new state-of-the-art greenhouse complexes are operating in Khabarovskii krai. With the help of the Environmental Policy and Technology (EPT) Project, modern greenhouse structures were erected and sophisticated equipment was delivered. But not a single seedling could be grown without clean water.

Originally, the irrigation water for the Nekrasovka greenhouse complex came from a nearby pond. Although the water was filtered to remove particles that could plug up the irrigation nozzles, it was subject to surface water pollutants: algae and other elements that were detrimental to growing seedlings. The biggest complication was pathogens entering the greenhouses and facilitating the spread of disease and insects in the seedlings.



Our Response

The EPT Project acting through a cooperative effort with the US Forest Service (USFS) and the Russian Federal Forest Service (RFFS) solved many problems at the two complexes related to water delivery systems: water pumps in Gursky and a well in Nekrasovka.

In Gursky, greenhouse water was supplied from a well, but they needed a pump to move the water from the well to the holding tanks, and from the holding tanks to the greenhouses. EPT purchased the pumps and completed the water delivery system for the complex. At Nekrasovka, the project partially funded the placement of a water well. The joint effort began with the

drilling of the well in December, 1996. The drilling work continued through March 1997. It was complicated by very difficult ground conditions. The workers bored through rock and found pure water with excellent flow rates at over 100 meters deep.

A water pump and large capacity water tanks were installed adjacent to the wellhead. Currently, the water from the well is pumped into the holding tanks where it is warmed and then delivered to the greenhouse irrigation systems.

The Impact

The drilling of the well in Nekrasovka and the supply of pumps in Gursky has satisfied the needs of the greenhouse complexes for pure, pathogen-free and non-bacteria-contaminated water.

There is finally an abundance of quality water for the seedlings. Sufficient water supply exists not only for the existing greenhouses, but also for the new ones to be built in the future (the total number of greenhouses in each location is currently planned to be increased up to 12). The use of clean water has increased the effect of fertilizers, reduced the needs for pesticides and increased the life of water supplying equipment (pumps, injectors, irrigation systems) because of the reduction of foreign materials in the water.

Key Personnel:

William E. Schlosser, EPT/RFE Chief Forester
Igor Shitsky, Khabarovsk EPT Office Manager
Brian Keating, US Peace Corps volunteer in Gursky
Nikolai Sychkov, Greenhouse Complex Manager, RFFS

Vladimir Pominov, Chief, Khabarovskii krai RFFS
Vladimir Kolomytsev, Deputy Chief, Khab. krai RFFS
Yurri Knysh, Director, Sosnovka Seed Breeding Center
Sergei Butin, Chief Forester, Sosnovka Seed Breeding Center
Anatoly Troshin, Gursky Greenhouse Manager



Environmental Policy and Technology Project

Russian Far East Sustainable Natural Resources Project

Khabarovsk Field Office

IMPACT STATEMENT

New Greenhouse Equipment

Nekrasovka & Gursky Greenhouse Complexes, 1997

Situation

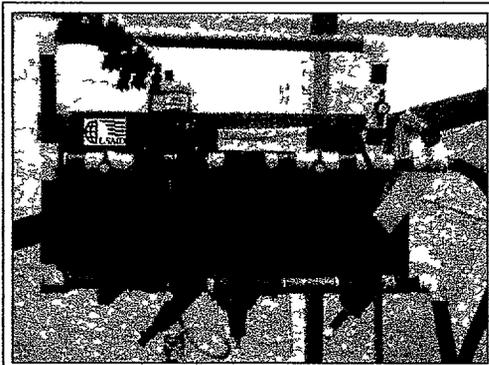
The development of state-of-the-art greenhouse complexes in Gursky and Nekrasovka are making a tangible difference in the production of containerized seedlings in the Russian Far East. However, the ability to develop a sophisticated greenhouse complex requires operations equipment designed to facilitate efficient seedling growth. For the most part, this technology did not exist in Russia until now.

Our Response

The Environmental Policy and Technology (EPT) Project working closely with partner organizations, the US Forest Service (USFS), and the Russian Federal Forest Service (RFFS), implemented an aggressive reforestation program in the Russian Far East. The goal of this program is to develop capacity to grow needed containerized seedlings in the RFE. After developing new greenhouse designs, building the greenhouses, and providing support equipment to operate the facilities, such as a seed extractory, freezer and cooler units, and a seed sowing line, the EPT project provided greenhouse support equipment. This critical equipment includes water filtration devices, fertilizer injectors, back flow prevention, pressure regulators, irrigation systems, plastic hold down systems, thermometers, hygrothermographs and two-stage thermostat temperature regulators.

The Impact

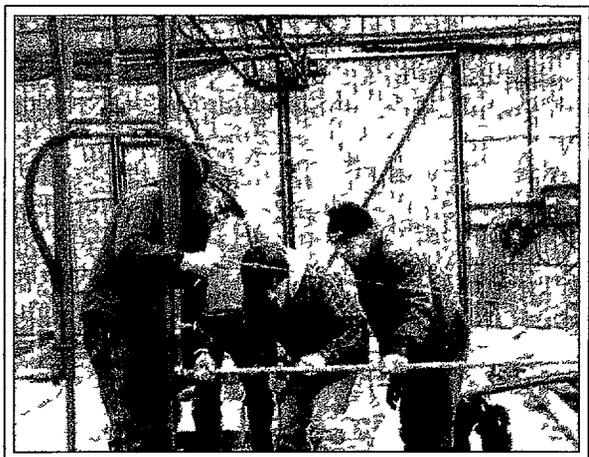
The installation of this state-of-the-art equipment has changed the way containerized seedlings are grown in Russia. The use of this equipment has caused a significant improvement in the health and vigor of seedlings. The water filtration system with its fertilizer injector system (pictured to the left) and the placement of the water well has greatly reduced the water borne contaminants that plagued the facilities prior to 1997.



Larch and Korean pine seedlings in Nekrasovka are thriving thanks to two ITS irrigation systems obtained through EPT. The ITS Basic Grower Jr is a ceiling rail suspended unit (pictured below-left) with a variable speed computer-

ized water delivery system.

A large impact resulting from the installation of the irrigation system has been its replication in Gursky. After studying the EPT procured system and comparing it to others seen in America, Anatoly Troshin (participant in the US study tour of 1996) designed and built two hanging irrigation systems at his complex in Gursky. These irrigation systems (pictured below-right) although lacking a computerized control system, works wonderfully by supplying water to growing larch and Spruce seedlings. This type of replication of technology by Russian partners, represents the future of containerized seedling production in Russia.



Key Personnel:

William E. Schlosser, EPT/RFE Chief Forester
Joe Myers, USDA Forest Service
Pete Owston, USDA Forest Service/EPT Liaison
Igor Snitsky, Khabarovsk EPT Office Manager
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Vladimir Kolomytsev, Deputy Chief, Khab. Krai RFFS
Sergei Butin, Chief Forester, RFFS Seed Breeding Center
Nikolai Sychkov, Nekrasovka Greenhouse Manager, RFFS
Anatoly Troshin, Gursky Greenhouse Manager, RFFS



Environmental Policy and Technology Project

Russian Far East Sustainable Natural Resources Project

Khabarovsk Field Office

IMPACT STATEMENT

Gursky Greenhouse Complex

1997

Situation

Wildfires logging operations and damage from diseased and wind blown trees create a need for high quality containerized seedlings to help reforestation efforts in the RFE. In order to focus reforestation efforts, the Gursky Greenhouse Complex has expanded its reforestation work to improve their permanent greenhouse structures.

Our Response

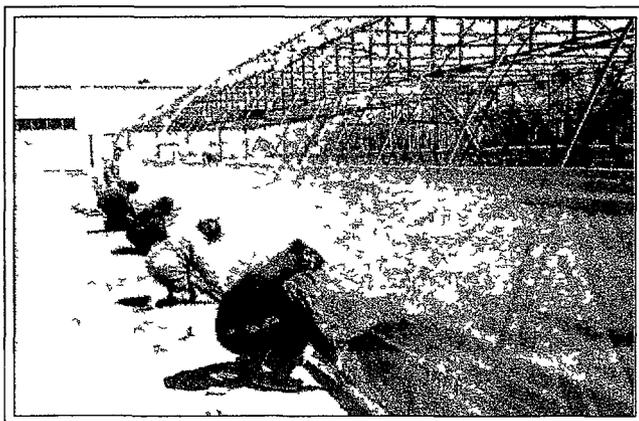
The Environmental Policy and Technology (EPT) Project working closely with their partners, the US Forest Service (USFS) and the Russian Federal Forest Service (RFFS), implemented an aggressive program of greenhouse retrofitting and equipment delivery to the Gursky Greenhouse Complex. Due to the accomplishments of the partnerships formed, the 1997 growing season at the Gursky Greenhouse complex

prepare the site for the growing season and to help install the above-mentioned equipment the EPT Project sponsored trips of various US consultants and specialists. Greenhouse designer John Bartok, University of Connecticut led the work on covering the two greenhouses with plastic installing and assembling an injector-filter system, irrigation booms, ventilation systems and motors. USFS Nursery Supervisor Joe Myers, made significant impacts by providing training of the local personnel in biology and technicalities of seedling growth and assisting with the installation of new equipment.

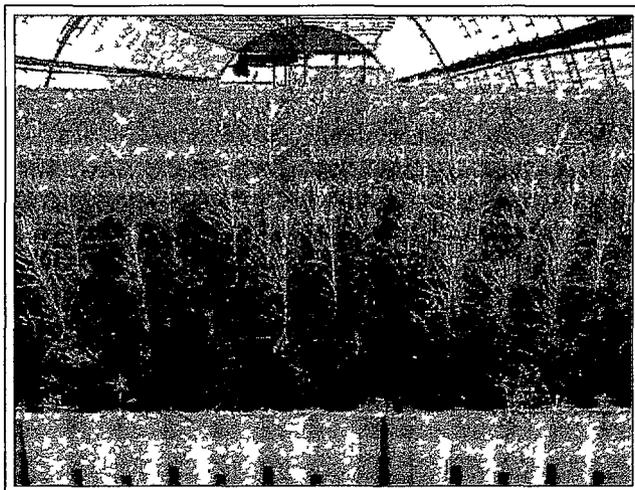
The Impact

The timely assistance provided by EPT and the dedicated approach on the part of Gursky-stationed US Peace Corps volunteer Brian Keating, greenhouse Manager Anatoli Troshin and EPT consultants resulted in the Gursky greenhouse complex successfully expanding and raising healthy seedlings during 1997. The two greenhouses in Gursky are currently fully operational state-of-the-art seedling production facilities growing larch and spruce seedlings.

Summer activities have included the construction of one additional greenhouse structure to complement the facility. The additional greenhouse will be operational by 1998.



located in the village of Selikhino (Komsomolskiy raion Khabarovskiy krai) consisted of two redesigned greenhouse structures both fully equipped with a ventilation system connected to a thermostat and hanging irrigation systems. The EPT Project provided Gursky leskhoz with a water pump, peat moss to be utilized as growing media, US manufactured UV stabilized poly covering for the greenhouses, fertilizers, seedling containers, water filtration systems, fertilizer injectors, hygrometers and associated equipment. To



Key Personnel:

William E. Schlosser, EPT/RFE Chief Forester

Joe Myers, USDA Forest Service

Pete Owston, USDA Forest Service/EPT Liaison

John Bartok, University of Connecticut Coop. Extension

Igor Snitsky, Khabarovsk EPT Office Manager

Vladimir Pominov, Chief, Khabarovskiy krai RFFS

Vladimir Kolomytsev, Deputy Chief, Khab. krai RFFS

Victor Korobkov, Director Gursky Leskhoz

Anatoli Troshin, Manager Gursky Greenhouse Complex

Brian Keating, US Peace Corps Volunteer in Gursky



Environmental Policy and Technology Project

Russian Far East Sustainable Natural Resources Project

Khabarovsk Field Office

IMPACT STATEMENT

Task 22 Training Programs in Forestry

Technical training is an integral component of scientific advancement and the realization of new practices. In light of the significant equipment procurement and scientific training programs initiated throughout the EPT Project a series of educational training opportunities was developed to augment and enhance the effectiveness of the forestry related programs.

Specialists from Russia, the US, and from within the EPT Project were used as educators to develop the science of reforestation and forest management. In two cases, US study tours were sponsored to give the Russian counterparts a concrete understanding of practices and procedures used at US facilities. In other cases the training programs were sponsored in the Russian far East where local conditions set the stage for the training events.

Workshops were sponsored through EPT on topics concerning ecosystem management, harvesting regimes for natural regeneration, forest genetics as it is affected by management practices, greenhouse management, integrated pest management programs, seed collection practices, plantation establishment, seed processing principles, tree planting technologies and practices, and associated topics.

An international conference was sponsored by EPT, The Far Eastern Forestry Institute of Khabarovsk, and

the Russian Federal Forest Service in the fall of 1996. The "Korean Pine – Broadleaved Forests of the Far East International Conference" attracted over 100 scientists from around the world. More than 112 reports were presented with 12 papers by the most eminent international authorities on the issues. The proceedings of the conference are currently being published through a cooperative effort of the EPT project and the US Forest Service.

Approximately 210 participants attended these educational programs, including the international conference participants and are now implementing improved management practices as a result of their participation in these programs.



The result of these educational programs has

been in increased awareness of sound forest management practices, improved reforestation technologies being implemented in the forests of the Russian Far East, and improved sustainability of the forest ecosystem in the region. In addition, the EPT RFE Chief Forester and 7 US consultants (US Forest Service and others) have worked one-on-one with Russian forest practitioners in developing sound management principles and technologies in numerous forest regeneration based topics.

Task Summary



Environmental Policy and Technology Project

Russian Far East Sustainable Natural Resources Project

Khabarovsk Field Office

IMPACT STATEMENT

Hands-on Greenhouse Training Program

Study Tour

March - April 1996

Washington, Oregon, Idaho

Situation

Funding, technology, and trained specialists form the backbone of a greenhouse facilities program developed by the Environmental Policy and Technology Project (EPT) in a combined effort with the Russian Federal Forest Service (RFFS) of Khabarovskii krai. The latter initiated containerized seedling production program as part of the reforestation program in 1994 though lack of technology and experience led to an initially modest achievement. The next year 2 container greenhouses and one bareroot greenhouse yielded already 6 000 seedlings. However this number was only the beginning in the effort to regenerate the forests of the region. An aggressive reforestation program was required.

Our Response

EPT and the RFFS in a cooperative effort filled the gap. The first step was to train the Russian greenhouse managers about appropriate knowledge in the management of containerized seedlings. The program provided for a four week US based training tour of 3 Russian greenhouse managers from Nekrasovka and Gursky in March and April, 1996, followed by US consultant's assistance during the start of the growing season of 1996. The training program in the USA was led by EPT partner, the USDA Forest Service.

The three Russian specialists were directly involved in nursery operations in Nekrasovka and Gursky greenhouses. Sergei Butin, Chief Forester of Sosnovka Seed Breeding Center (Nekrasovka), Anatoly Troshin, Gursky Leskhoz Nursery Manager (Gursky) and Evgeny Polovnikov, Gursky Leskhoz Chief Forester (Gursky). An intensive schedule covered both theoretical and practical aspects of training, providing for a chain of visits to private and US Forest Service nurseries in the three states. The team members combined hands-on training with an extensive program of meet-

ing experts in various areas of tree seedling production.

The Russian foresters were updated on the latest technology for both containerized and bare root coniferous tree seedling production: high tech greenhouses well-equipped with state-of-the-art ventilation, heating and irrigation systems designed to maximize artificial climate potential in growing viable seedlings; seed processing equipment and sowing lines, various types of machinery used for open seedbed operations and seedling extraction. Theoretical aspects included briefings

on tree seedlings physiology, biology and pathology and tree improvement programs. Russian nursery managers were also updated on computerized management programs.

The Impact

The trip proved very instructive as a prelude to the entire 1996-97 reforestation effort implementation in the RFE. Russian foresters who already had basic practical knowledge of the green-



house construction techniques and management operations became strongly motivated to invest more time and effort into the project already started. The sides exchanged comments on the principal design of the prototype greenhouse to be constructed, technical needs of the Russian side prior to the consultants arrival, procurement and delivery of the materials and equipment required for the greenhouse retrofitting task for the season in Nekrasovka and Gursky.

Teamwork at the Lewiston and Coeur d'Alene greenhouses in Idaho created a spirit of cooperation that stayed a part of the project. The benefits of grass root level contacts were hard to overestimate for both sides in terms of professional experience and cultural enrichment.

The tour trained the Russian specialists while it created professional friendships to last a lifetime.

Key Personnel:

William E. Schlosser, Chief Forester, EPT Project, Khab

Pete Owston, USDA Forest Service, EPT Liaison

Daniel Alden, USDA Forest Service, Alaska

Joc Myers, USDA Forest Service, Idaho

Vladimir Stabin, USDA Forest Service, Washington

Vladimir Pominov, Chief, Khabarovskii krai, RFFS

Sergei Butin, Chief Forester, Sosnovka Seed Breeding Center

Anatoly Troshin, Gursky Leskhoz Greenhouse Manager

Evgeny Polovnikov, Chief Forester, Gursky Leskhoz

Brigit Pashkurova, Program Support Specialist, EPT Project



Environmental Policy and Technology Project

Russian Far East Sustainable Natural Resources Project

Khabarovsk Field Office

IMPACT STATEMENT

Ecosystem Management Seminar

September 17-19, 1996

Khabarovsk

Situation

The forests of the Russian Far East are rich in natural diversity, while providing wildlife habitat fisheries, fresh water supplies, jobs through timber harvesting and milling numerous non-timber forest products, and an enormous storehouse of hardwoods and softwoods. The foresters who are responsible for managing these resources are very capable of performing their tasks but benefit from the interaction with U.S. educators, scientists, and managers to learn new concepts and techniques in sustainable forest management.

Our Response

During 1995 two groups of professional natural resource managers, scientists, and educators from the Russian Far East (Buryatia and Moscow) were sponsored by USAID for sustainable forestry training in America. The benefits derived from these educational programs are significant, and these individuals are a catalyst for change within their professional circles. The Russian Far East Environmental Policy and Technology Project in cooperation with Washington State University, the Academy for Educational Development, and the U.S. Forest Service sponsored a three-day training program designed as a follow-on training for those Russians who attended USAID-sponsored training in the United States. The educational program included topics of rational forest use, ecosystem management, forest economics, forest policy, fire prevention and control issues, and new technologies in forest management. The seminar titled "Forest Management Follow-on Training" was conducted on September 17-19, 1996, at the RFFS Training Center in Sosnovka (near Khabarovsk).

The Impact

The workshop was an interactive learning experience between the instructors and the participants using instructor presentations, group discussions, field tours, and problem-solving exercises. During the seminar, field trip students and instructors traveled to Avialesookhrana to learn about fire suppression techniques, and to Nekrasovka to learn about new greenhouse designs, nursery operations, and reforestation practices.

Seventeen individuals participated in the three-day follow-on training. The majority of the participants worked

for the Russian Federal Forest Service, however, one member of the press was also in attendance at the entire seminar.

All of the students indicated that the usefulness of the training experience was good to excellent as applied to their own situation. On a 5-point scale, the participants rated the quality of the studies as 4.3 and the translators/interpreters as 4.4. All of the participants rated the quality of the instructors as good to excellent (4.5) and the technical knowledge of the instructors similarly (4.5). Additionally, the instructor's knowledge of the Russian situation was rated a score

of 4.1. The program content, teaching methods, printed materials, and the tie between the theoretical and practical sides of the information all received a rating above 4.1 by all of the participants. Each participant took home a notebook summarizing all of the presentations and calculators for doing economics calculations.

The participants were enthusiastic and tirelessly inquisitive during formal presentations and informal discussions.

All of the students, 100%, indicated that the training experience was applicable to their own situation and that they would implement improved management practices as a result of this experience.

Educators:

William E. Schlosser, EPT/RFE Chief Forester, Khabarovsk
David W. Baumgartner, Washington State University, Pullman
Richard L. Everett, U.S.F.S., PNW Research Station, Wenatchee
Vincent Corco, Northwest Management Inc., Moscow, ID

Interpreters:

Pashkurova Birgit Rudolfovna, Program Support Specialist
Usova Elena Pavlovna, Assistant to Chief Forester
EPT Khabarovsk Field Office Staff



Environmental Policy and Technology Project

Russian Far East Sustainable Natural Resources Project

Khabarovsk Field Office

IMPACT STATEMENT

Ecosystem Management Seminar

September 23-25, 1996

Khabarovsk

Situation

The forests of the Russian Far East are rich in natural diversity, while providing wildlife habitat, fisheries, fresh water supplies, jobs through timber harvesting and milling, numerous non timber forest products, and an enormous storehouse of hardwoods and softwoods. The Russian foresters responsible for managing these resources are very capable of performing these tasks but benefit from the interaction with foreign Foresters to learn new concepts in ecosystem management.

Our Response

During the past 3 years several groups of professional foresters from the Russian Far East have been sponsored by USAID for sustainable forestry training in America. The benefits derived from these educational programs are significant and these individuals are a catalyst for change within their professional circles. In cooperation with the U S D A Forest Service and Washington State University, the EPT Project sponsored a three day training series designed as a follow-on training for foresters from the far east who attended USAID sponsored training in the USA during the past 3 years. The educational program included topics of ecosystem management, forest economics, forest policy, fire prevention and control issues, and new technologies in forest management. The seminar titled "Ecosystem Management and Economics for the RFE" was prepared and delivered for a select group of professional foresters representing academia, the Russian Federal Forest Service, and Leskhozoes on September 23-25, 1996, at the RFFS Training Center in Sosnovka (near Khabarovsk). Workshop participants were selected cooperatively by EPT and the RFFS to include participants from southern Primorskii Krai through central Khabarovskii Krai.

The Impact

The workshop was an interactive learning experience between the instructors and the participants using instructor presentations, group discussions, field tours and problem solving exercises. During the seminar field trip students and instructors traveled to Avialesookhrana to learn about fire suppression techniques and to Nekrasovka to learn about new greenhouse designs, nursery operations and reforestation practices.

Sixteen individuals participated in the three day workshop. The participants mainly represented employment through the federal government and natural resource institutes. Virtually all of the participants attended the seminar with the expectations of learning more about western forest management practices and increasing their understanding of various forms of forest use.

Over 90% of the participants indicated that they would implement improved management practices as a result of attending this educational opportunity. A staggering majority, 93% of the participants indicated that this educational opportunity overall was good to excellent. Additionally, they all rated the instructors as outstanding (100% good to excellent) along with the information and take home materials (these included printed information and calculators used for financial decision making).

Additional participant comments indicated that the group interactions aided greatly in the absorption of the information and concepts. The participants were enthusiastic and tirelessly inquisitive during formal presentations and informal discussions.

Participant Quote
"I believe that the information taught in this forest management seminar could be and should be used daily in the Russian forest management decision making process!"

The participants were enthusiastic and tirelessly inquisitive during formal presentations and informal discussions.

Educators:

William E. Schlosser, EPT/RFE Chief Forester, Khabarovsk
David M. Baumgartner, Washington State University, Pullman
Richard L. Everett, U.S.F.S., PNW Research Station, Wenatchee

Interpreters:

Pashkurova, Birgit Rudolfovna, Program Support Specialist
Usova, Elena Pavlovna, Assistant to Chief Forester
EPT, Khabarovsk Field Office Staff



Environmental Policy and Technology Project

Russian Far East Sustainable Natural Resources Project

Khabarovsk Field Office

IMPACT STATEMENT

Korean Pine - Broadleaved Forests of the Far East International Conference

Research, Integrated Use, Experiences, Challenges, Prospects - 1996

Situation

Korean Pine - Broadleaved forests predominated by *Pinus Koraiensis* occupies a comparatively substantial area in Primorsky krai and southern part of Khabarovskiy krai in Russia, as well as regions in China Korea and Japan. They are distinguished worldwide by an extreme diversity and richness of tree and shrub species, rare types of wildlife and other valuable resources. Their intensive exploitation in the past has led to a significant decrease in the resource potential causing concern for their future on a global level. Problems related to their use and management were last discussed in a large forum 40 years ago (1959, Novosibirsk, Russia). The magnitude of the challenges of the forests sustainable use facing the world community made it imperative to discuss accumulated knowledge.

Our Response

The Far Eastern Forestry Institute in cooperation with the EPT Project hosted the International Korean Pine - Broadleaved Forests of the Far East Conference on October 1-4, 1996, in Khabarovsk. The Organizing Committee (12 people) chaired by Director of the Forestry Institute D. F. Efremov conducted substantial work related to disseminating information about the conference, attracting attention of the world public through mass media, including the Internet. The RFE EPT Project worked in close cooperation with the organizing committee providing necessary assistance.

The initiative was fully supported by the Russian Federal Forest Service, the Administration of Khabarovskiy krai and international agencies. A broad range of issues on research, present day status, use trends of the RFE Taiga, and forest characteristics in the Asian Pacific region were highlighted at the conference. The main topics discussed included environmental

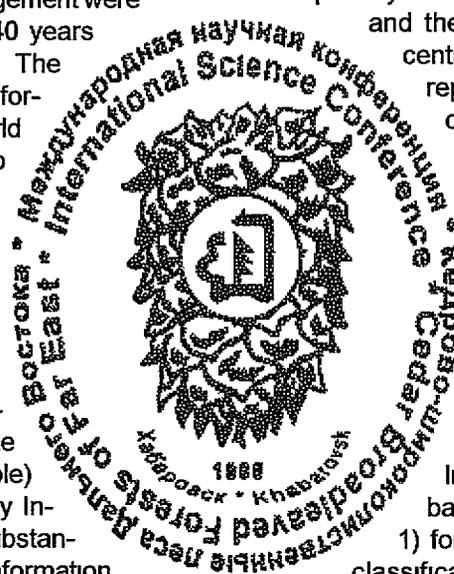
characteristics, typological classification, resource state, dynamics and age succession, optimization principles of the forest type, integrated uses, reforestation and rehabilitation, selection and genetic pool preservation, biodiversity conservation, forest pathological condition, and sustainability.

The Impact

More than 112 reports were presented with 12 papers by the most eminent international authorities on the issues. Published in the collection of reports were papers by scientists of Russia, USA, Japan, China and the Ukraine. Education and scientific centres throughout Russia were broadly represented at the conference (Moscow, Voronezh, Tomsk, Krasnoyarsk, Khabarovsk, Birobidjan, Yuzhno-Sakhalinsk, Vladivostok and Ussurisk). Over 100 participants listened to 67 reports and participated in a one-day field trip that covered 10 site visits in Khekhtsirsky experimental leskhoz of the Forestry Institute.

Prior to the conference a collection of reports and abstracts was published in both Russian and English based on the following classifications: 1) forest formation process, 2) typology, classification, biodiversity, 3) regeneration, 4) biota of Korean pine-broadleaved forests, 5) selection of the genetic pool, 6) protection and management, 7) forest use, resource estimation and applied issues.

The EPT Project in cooperation with partner organization, the US Forest Service, provided funding and technical leadership in publishing the entire proceedings of the conference. Editorial input for the proceeding's publication are being carried out by a combined editorial group of the Far Eastern Forestry Institute, the Khabarovsk EPT office, and the USFS Pacific Northwest Research Station.



Key Organizations:

The Far Eastern Forestry Institute, Khabarovsk
Environmental Policy and Technology Project, Khabarovsk office
USDA Forest Service, Pacific Northwest Research Station



Environmental Policy and Technology Project

Russian Far East Sustainable Natural Resources Project

Khabarovsk Field Office

IMPACT STATEMENT

Genetics and Tree Improvement

Study Tour

March 24 - April 19, 1997

Washington, Oregon, Idaho

Situation

The objective of the tree improvement program of the Russian Federal Forest Service (RFFS) is to improve and implement a superior reforestation program through containerized greenhouse technologies. This process is developing remarkably well, the next step for the RFFS in both krai is to implement improved forest genetics programs. Plans include developing seed zone maps for three species in the Russian Far East (Korean pine, spruce, and larch) and establishing seed breeding orchards. This will give the RFFS the ability to raise genetically superior seedlings in the greenhouse complexes. While it is the stated goal of the RFFS to do this work, Russian forest scientists and managers lack knowledge of the recent technological developments in forest genetics. The Russian specialists are scientists but they need exposure to new concepts and techniques in forest genetics and tree improvement for managing genetic diversity and bringing about greater seedling survivability, increased growth, and improved tree characteristics.

Our Response

The RFE Environmental Policy and Technology (EPT) Project implemented a four-week study tour in March and April 1997 in the USA on genetics and tree improvement. The study tour was planned and directed by Dr. David M. Baumgartner, Professor, Washington State University and William E. Schlosser, Chief Forester, EPT Project. Seven representatives of Khabarovskii and Primorskii krai were chosen in a cooperative effort between the EPT Project and the RFFS offices in each Krai. The objective of the study tour and associated seminars was to increase the scientific knowledge and applied skills of the participants in forest genetics and tree improvement. During the study

tour the group visited universities, national forests nurseries, seed orchards, regeneration centers, forestry operations sites in the states of Washington, Idaho, and Oregon. The Russians learned progressive methods of tree breeding in the US and were exposed to various approaches to forest management in federal, state, industrial, and small private lands. In total, the Russians met with over 50 US specialists and scientists.



The Impact

Information learned is leading to improved forest genetics and tree improvement programs in the Russian Far East. Impacts are significant, immediate and long lasting. Yuri Knysh, Director of the Sosnovka Seed Breeding Center said "the study tour will save me at least two years of work in forest genetics research at my Center". Other comments were of a like nature in praise of benefits and knowledge learned

during the study tour and the quantity and quality of the program.

The Russian participants were well prepared and eager to work hard to take maximum advantage of the opportunities provided. American instructors said they had never encountered such a patient, mature and businesslike group before. The study tour was helped greatly by a genetics seminar in the RFE led by William E. Schlosser, Chief Forester, EPT Project in March 1997 prior to travel to the USA. The Russians noted the excellent overall organization, the good planning and preparation of the American instructors, and the instruction and organizational assistance provided by Matvei Finkel, Russian-American Island, Spokane, Washington, and Jess Daniels, Daniels and Associates, Forest Genetics Consultants, Centralia, WA.

Key Personnel:

David M. Baumgartner, Professor, WSU, Pullman, WA
William E. Schlosser, Chief Forester, EPT Project, Khab
Jess Daniels, Daniels and Associates, Centralia, WA
Matvei Finkel, Russian-American Island, Spokane, WA

Vladimir Pominov, Chief, Khabarovskii krai RFFS
Anatoly Prikhodko, Chief, Primorskii krai RFFS
Yurii Knysh, Director, Sosnovka Seed Breeding Center
Vladimir Butenko, Chief of Primorskii Reforestation Dept.
Lena Usova, Chief Forester Assistant, EPT Project, Khab