

Adaptive Management Areas 1997 Success Stories

*Partnership ... Working, Learning
and Managing Together*



**United States
Department of the Interior**



**Bureau of Land
Management
Oregon/Washington/
California State Office**



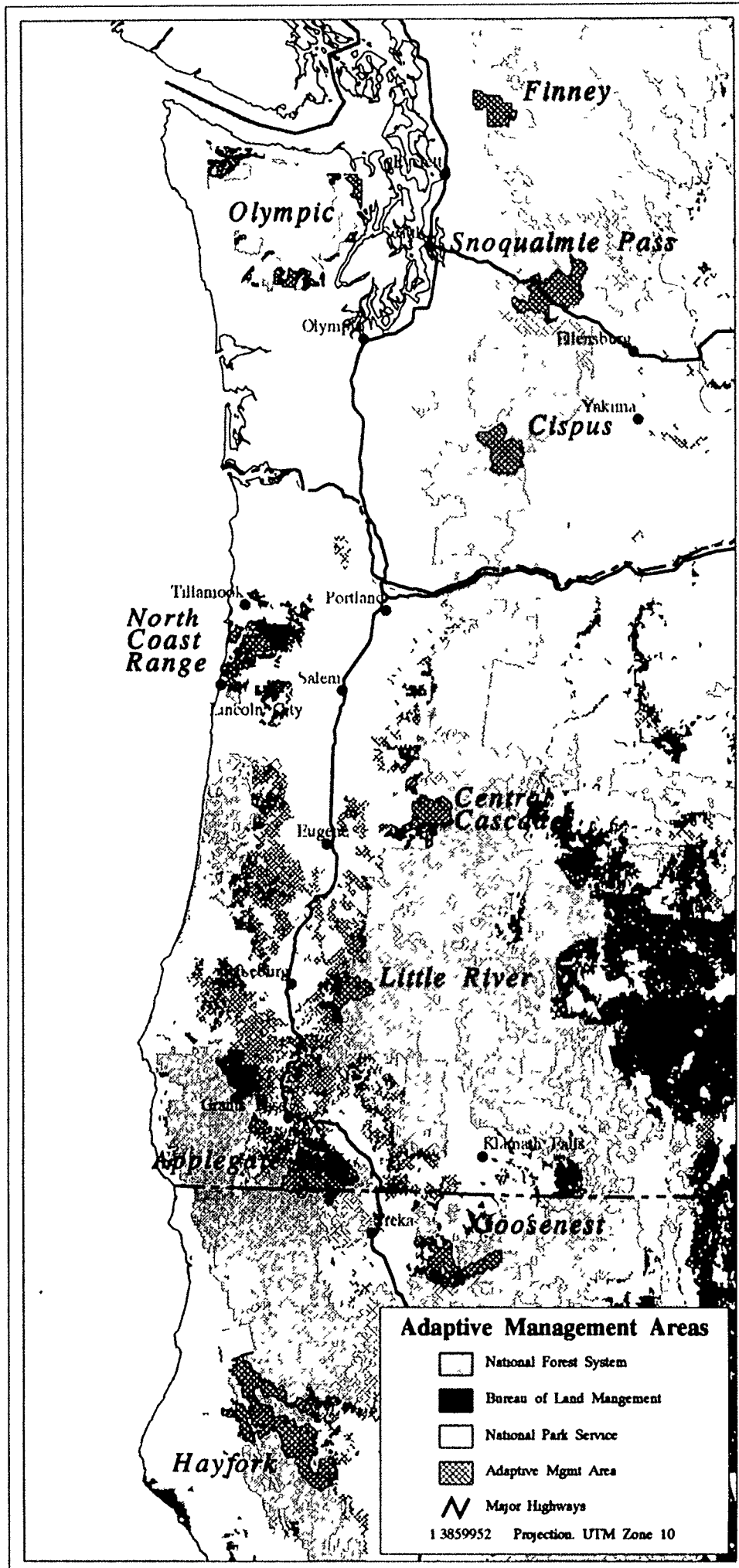
**United States
Fish & Wildlife Services**



**United States
Department of Agriculture**



**Forest Service
Pacific Northwest Region & Station
Pacific Southwest Region & Station**



Adaptive Management Areas 1997 Success Stories

*Partnerships...Working, Learning
and Managing Together*

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Other Web Homepages for Adaptive Management Networking

AMA Network <http://www.teleport.com/~amanet>

H.J. Andrews <http://www.fsl.orst.edu/lter>

Main AMA Network lists all research and monitoring ongoing on AMAs
Individual AMA pages listed above offer local pages with links to research,
education, and other partners

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Introduction

This report highlights 1997 accomplishments in the 10 Adaptive Management Areas (AMAs) in Oregon, Washington and northern California that were established in 1994 through the Northwest Forest Plan. Management of these areas continues to focus on innovations in ecosystem management, science, community collaboration, and technical applications. *Promoting partnerships is the key to designing and implementing these projects in the Adaptive Management Areas*

As you read the stories, you'll see that each adaptive management area has a unique character depending on its resource values and communities. This year's report is presented by five major topics—Partnerships, People With Shared Missions Working Together, Monitoring/Evaluation/Research, Testing of Standards and Guidelines, Landscape Projects, and Local Outreach and International Leadership. Recognizing that many people now have computers with access through web sites, the report includes several reference sources for additional information on various subjects and the AMAs.

Also, the AMA representatives listed in the front of this report will gladly provide additional information on the AMAs or any story in this report.

Partnerships: People With Shared Missions Working Together

Public land management benefits from partnering—the combining and sharing of resources, staffing, funding, and ideas with other agencies, organizations and businesses, and individuals. The following stories reflect this joint stewardship.

Cispus AMA Outdoor Work and Education . Benefiting the Community and Students

Two programs benefiting the White Pass community of southwestern Washington state (Packwood, Randle, Glenoma) and its students are Environmental Studies including field instruction through the high schools, and Discovery Team III—a summer employment experience for youth. The high school program helps students understand scientific concepts, adaptive management principles, and use of long-term accurate monitoring methods in adaptive change. During 1997, students collected baseline data on streams being monitored for effectiveness of restoration.

Discovery Team III employed 24 students during Summer 1997. The students spent their first week learning employability skills, including communication, research, interview techniques, decision-

making, teamwork and presentation. During week two, after conducting extensive research and with mentoring by a professional anthropologist, students visited the Toppenish Yakama Nation Culture Center to meet and interview tribal elders. This interview is documented in the 1997 *Discovery Team III Notebook* and on a video produced by the White Pass multi-media class. Also interviewed was an elder from the Cowlitz Indian Nation. Week three moved the students into the forest environment to enhance forest accessibility. These projects are each highlighted in the *Notebook*, which is widely shared with the public to promote pride in the community and its youth. Other school districts are expressing interest in implementing the program in their schools; this year, Morton and Mossyrock sent students and an instructor to participate and learn about the program.

Just as noteworthy as the *Notebook* is the striking transformation in most team members and the community. Students demonstrate improved self-esteem and learn valuable life-time employment skills. They interact with people of all ages and professions, visitors, and long-time residents. The team is a focus for the Community Self-Assessment Committee, which provides a cohesive and



Mary Ann Lewis, interviewed by White Pass Discovery Team

continuous forum for interaction between the community and the Forest Service. This collaboration is valuable for sharing information in an area such as White Pass where no formal networks exist.

The Discovery Team and White Pass Environmental Studies were selected by the Governor's Council on Environmental Education as one of three model programs to study for successful collaboration between schools and agencies. The Council will work with the AMA and school district to identify elements that create success, and the means for including these elements into policy for environmental education in the State of Washington. The environmental program was also nominated by the Gifford Pinchot National Forest for the Regional "Caring for the Land" award and a Challenge Cost-Share proposal was submitted to fund a resource specialist in the classroom for one morning each week.

**Central
Cascade AMA**
*Camas Prairie
Restoration
Project in Oregon
Supports Tribal
Traditions*

A 15-acre site in the Central Cascade AMA, known as the Camas Prairie Restoration Project, provides a unique cooperative opportunity between diverse groups—the Siletz and Grande Ronde Indian Nations, Pacific Northwest Forest Service Research Station at Corvallis, Lane Community College Youth Program, Oregon State University, BLM Eugene District, and the Willamette National Forest (Blue River, McKenzie, and Sweet Home Ranger Districts). The restoration site includes ancestral lands of two tribes (Kalapuya and Molalla) having descendants within the Grande Ronde and Siletz Nations. The site was homesteaded in the mid-to-late 1800s. Over the years the various management activities in and around the site included haying and logging and, more recently, dispersed camping.

A botanical survey, done after acquisition in 1994, located camas (*camassia quamash*) in the meadow. An informal partnership, formed through an interagency Challenge Cost-Share grant, is working to restore the wetland to a thriving camas meadow that supports traditional tribal use. Partnership accomplishments to date include collection of over 15,000 camas seeds, removal of ash trees and other competing species from 5 acres, collection of



Camas, an edible bulb, was once the mainstay of local Native American diet. The camas bulbs were harvested in large quantities during spring and summer. A common preparation method was to bake the bulbs in pit ovens for 2 to 4 days, press the pulp into cakes, then dry them in the sun. The cakes were later ground into mash for use in various food staples.

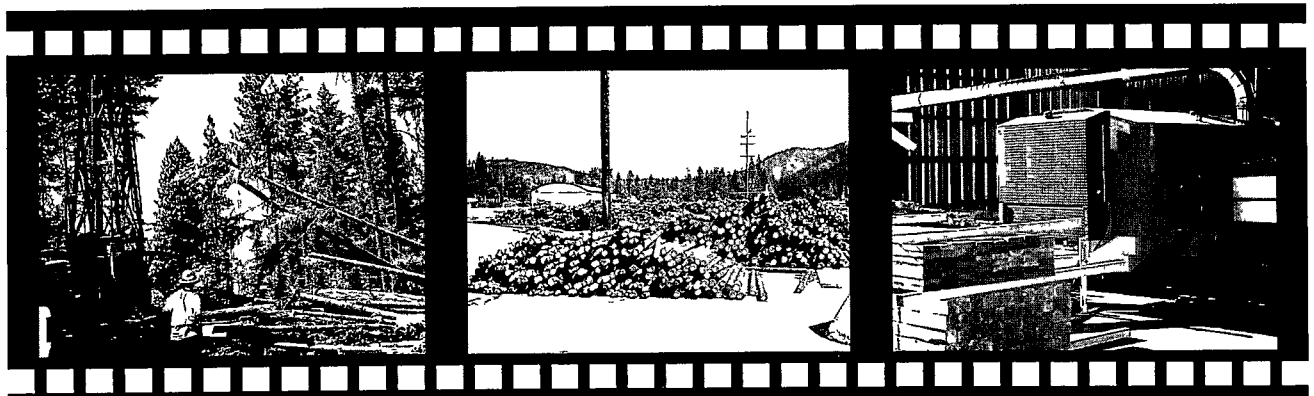
cultural site information, including over 65 pounds of fire-cracked rock thought to be remnants of camas ovens, and installation of monitoring plots to help measure kinds and amounts of vegetation over time with differing treatments. Some of the collected seeds will be used to raise camas bulbs through a contract with the BLM Eugene District, and some slash will provide firewood for local residents.

Hayfork AMA *California Model Studies Small Diameter Materials*

In 1992, the Hayfork Watershed Research and Development Center created a not-for-profit organization as a result of a local initiative to help local citizens of Trinity County in northern California adapt to changing values in public land management. Needs were recognized for research, training, education, and economic development.

After signing of the Northwest Forest Plan in 1994, it became evident that fuels reduction on public and private lands was the single common ground most popular with local collaborative groups. Removal of small diameter material by USFS and BLM through fuels reduction work highlighted the absence of a local market for the material. Consequently, small diameter material has been removed by service contract or has resulted in timber sales with marginal economic value. Although there is a need in the Hayfork AMA to shift to smaller diameter sales, potential bidders are not knowledgeable on the cost to harvest, availability of harvest systems, and markets for the product. There are few, if any, local mills that can efficiently mill the small diameter material. Also, potential purchasers don't know the quality and capabilities of wood from small diameter material.

In response, the Hayfork Watershed Research and Training Center collaborated with the Shasta-Trinity National Forest, Trinity Occupational Training Center, Shasta College, and Pacific Southwest Research Station to initiate a small diameter demonstration project. The purpose of the study is to compare harvest costs, removal, transportation, and milling, demonstrate commercial practicality of a modified Bitterroot yarding system and a small portable processor, develop a market to help fund similar future activities, develop a viable and sustainable method to



Small diameter project - Chopsticks I (a) Hayfork yarder (b) logs from test plot in sort yard (c) Economizer 2" x 6" and 4" x 4" lumber

generate funding for areas with heavy fuels, and examine harvest impacts. The project was implemented on 25 acres under a timber sale contract and involved 32 MBF of merchantable volume and 13 MBF of submerchantable (4-9 inch dbh) volume. Yarding was completed in 26 days using a training crew. Preliminary milling results indicate that the 13 MBF of submerchantable material yielded approximately 70 MBF of lumber.

Other accomplishments included sale of 3 units of finished dimensional lumber to a retail lumber yard and 15 units to a remanufacturing company. A second sale area of 12 acres is in progress. Reports on its soil and economic monitoring, as well as yarder and processor capability, are expected to be available in early 1998.

Goosenest AMA Siskiyou Ecosystem Management Training Program in California

The Siskiyou Ecosystem Management Training Program, a demonstration project funded by a Federal grant from the Secretary's National Reserve, is a key partner in implementing resource projects and studies such as timber sale marking, fencing, and creek stabilization. The program is sponsored by the Siskiyou Training and Employment Program (STEP) through the College of Siskiyous in coordination with community-based organizations, with the intent of providing training opportunities in ecosystem management activities. The 1997 training center crew completed stream surveys and restoration projects and will also assist with fall underburning projects in the Goosenest AMA.

Monitoring, Evaluation and Research

A wide range of studies are being done in the ten adaptive management areas, from mushrooms to the Mariposa lily, fish to floods, and vegetative studies involving native plants and shade-intolerant conifers.

Mushroom Studies in Washington and California

Questions to be answered by Mushroom Monitoring Project

- *How are levels of sustainability for non-timber plant species defined?*
- *How are sustainable harvest of these resources managed?*
- *How do land management activities affect productivity?*

Cispus AMA Studies Edible Mushrooms

Edible mushrooms and other non-timber natural resources were identified for emphasis during public participation in the Cispus AMA strategies and workshops on research and monitoring.

A partnership was formed between the Cispus AMA and the Pacific Northwest Research Stations in Portland and Corvallis to develop assumptions, sampling methods, and protocol for the Mushroom Monitoring Project. The project also offered a training opportunity for Alberto Gomez, an exchange research biologist from the Monarch Model Forest in Morelia, Mexico.

Testing and comparing sampling methods are vital in determining statistical validity, especially for a



Cispus Mushroom Study

resource both spatially and temporally dependent on weather condition. Results of 1996 work helped to identify possible study sites, test several sampling methods using strip and circular plots, and establish the summer's permanent plots. The permanent plots will be in place for five years to monitor production function and mushroom response to commercial thinning. The trial identified several things

- There was error in quality assurance. Mushrooms recorded in plots were not found on consequent visits.
- As all mushroom pickers know, mushrooms can be difficult to find.
- Plots, especially circular ones, are trampled when established and sampled.
- In spite of posting in several languages, illegal harvest occurred which affected the accuracy of productivity estimates and resampling for quality control.
- Changing and often unpredicted weather complicates the coordination of mushroom sampling,

For more information on the Mushroom Monitoring Project, check the Internet
 Home page <http://www.fsl.orst.edu/home/usfs/mycology/pilzd.html>
 On-line poster <http://www.fsl.orst.edu/80/home/usfs/mycology/poster/poster.html>

Goosenest AMA Learns About Matsutake Mushrooms Little is known about the role of fungi in ecosystems and impacts of timber or human harvest on mushrooms and other plants. Because of this data gap and increasing numbers of commercial and individual mushroom harvesters on the Goosenest AMA and surrounding forests, the Matsutake mushroom is being monitored in the Goosenest AMA. The main research purpose is to determine short and long-term effects of stand thinning and soil compaction on mushroom production in three timber/soil types in Medicine Lake Highlands (Klamath, Modoc, and Shasta-Trinity National Forests).

Fire Studies in Southwestern Oregon

Fire History Study in Little River AMA A data gap in the regional fire history is being filled by a master thesis project of Kelli Van Norman on characterization of the fire history within Little River Watershed in the general area of Roseburg. Project cooperators were the National Science Foundation, the Forest Service's Pacific Northwest Research Station, Oregon State University, Roseburg BLM District, and the Umpqua National Forest. The study will

provide models of potential fire behavior in southwest Oregon, as well as information about relationships of landscape features (such as elevation, slope, slope position, and aspect) and vegetative types to the historical geographical fire patterns. Kelli collected data from tree ring fire scars throughout the AMA to help describe fire regimes before and after European settlement, as well as more recently since fire suppression. Both the thesis and report to the Forest Service and BLM should be completed by Summer 1998.

Fire Reintroduction Considered in Southern Oregon's

Applegate AMA Silvicultural and fire management characteristics of stands are being quantified to produce defensible fuel profile zones in the Applegate basin west of Medford, pre-harvest plots are being established in stands having diverse conditions, and detailed silvicultural and stand data is being collected to determine vigor index and fire management data. The fire and stand data are used in growth models to test effects of various fuel treatments. Study data will help design and implement innovative plans, research, and monitoring involving large-scale reintroduction of fire in the western states.

The project will provide information about lowering fuel hazards, risks, insect-related mortality, improving stand vigor, and promoting native plants. Expected outcomes are improved prescribed fire treatments for managing the fuel load with known consequences to plants in terms of community structure, insect activity, stand vigor, thinning, and balance of desired/undesired plant species. Other expectations are improved prediction of treatment changes for tree/shrub canopy, cover abundance, grasses and forbs, soil surface cover, large logs, and other fuels, more knowledge about the vigor of remaining overstory and wildfire hazard. Dr. Mike Amaranthus, who is conducting the study in cooperation with BLM, USFS, Boise Cascade, and private landowners, says "This project is also intended to involve the community in developing and supporting research projects and create educational opportunities for the community."

Vegetation Studies in Oregon

Two Studies in Little River AMA

Regeneration The East Clover Timber Sale, located on U.S. Forest Service administered lands in the Little River AMA, included a study on the growth of shade-intolerant conifers planted under partially harvested stands of old growth. The basis for this study is the recent resumption of uneven age management in westside forests for its potential to provide forest products, as well as old-growth habitat, for endangered fish and wildlife.

By combining 0.5-acre circular clearings and old-growth thinnings, the sale generated 2.1 million board feet of timber to local markets. All harvested areas will be burned and planted to Douglas-fir and western white pine. The study is correlating survival and growth of both planted and naturally established seedlings to various canopy openings created with the harvest. Light levels are also being tracked. Seedling survival and growth in the partial cut areas will be compared to seedlings in stands that are underburned but not partially harvested, and also to stands having no harvest or burning.



A one-half acre opening surrounded by partially harvested old growth. This adaptive management project is testing the growth of Douglas-fir seedlings planted following partial harvest and burning in southwest Oregon.

Late-successional study

Mariposa Lily, Roseburg, BLM



Mariposa Lily Research Research is being done to assess whether reducing an overstory of encroaching conifers maintains or increases the habitat of a population of Mariposa lily (*Calochortus umpquaensis*), an Oregon Endangered species and a Federal candidate. The plant's scarce occurrence may be partially due to fire exclusion, which has resulted in succession to other plant communities, and to closed canopy forest that has replaced much of the mountain meadow habitat preferred by the lily. The research is being coordinated by

BLM's Roseburg District and the USFS Forestry Sciences Lab in Corvallis. Students with the Wolf Creek Job Corps, a partner in the research effort, removed brush from six test plots. Some selective burning will be conducted when conditions permit. Study results will have larger-scale applications not only within the AMA but elsewhere within the species' range.

Late-Successional Study in Applegate AMA Several people are working together to learn more about development of late-successional and younger Douglas-fir mixed conifer stands in southwest Oregon's Applegate AMA. The reason for the research is that preliminary observations indicate the Northwest Forest Plan standards and guides will not achieve the plan's objectives for replacing late-successional forests in that area. Key researchers are Tom Sensenig representing BLM and Oregon State University, Mike Amaranthus of the Pacific Northwest Experiment Station, John Tappeiner who works for National Biological Services and Oregon State University, and Marty Main who is a private forester. Among study discoveries

to date: (1) Low intensity fires and disturbance influence development of old-growth forests, (2) changes in disturbance regimes affect development of younger forests differently than older forests, and (3) rates of old-growth mortality exceed rates of development.

Native Plants Revegetation Study in Central Cascades AMA

In Oregon, the Eugene District BLM and the Willamette National Forest are jointly testing new revegetation methods using native plant material on sites where natural revegetation has not begun. The field test will study how well native plants stabilize road cutbanks and provide erosion control off Goodpasture Road, approximately 30 miles east of Eugene. The study has three main objectives: determine effectiveness of seed germination in mineral soil, types of species that germinate best, and most effective mulching treatments in facilitating seedling establishment and survival.

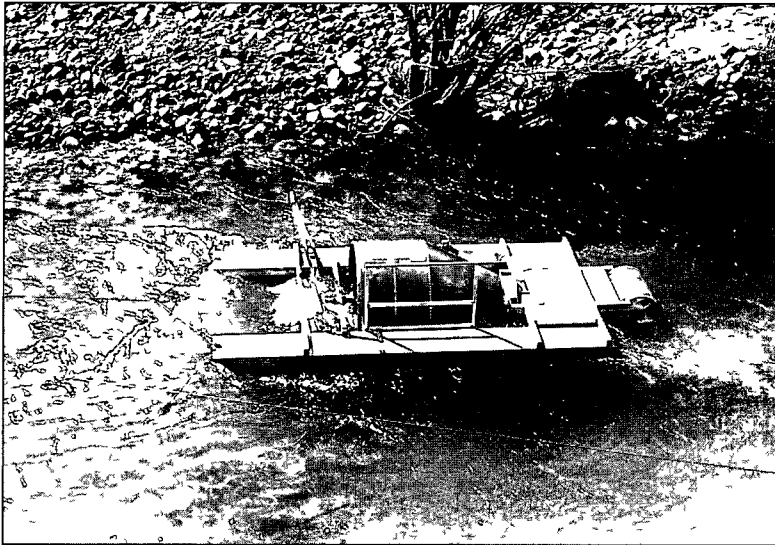
Approximately 40 pounds of native plant seed collected through the Jobs-in-the-Woods program was mixed with 2,000 gallons of hydromulch slurry and sprayed along the road cutbank during April 1997. Various treatment methods were done, from two direct seedings with sterile wheat, one with straw mulching and netting and one with no mulching, to six varying hydromulch treatments, and fill slope with no treatments for the control treatment. Native species in the seed mix included salal, dwarf Oregon grape, bid deervetch, blue wild rye, cow parsnip, Oregon sunshine, bigleaf lupine, ocean spray, California brome, Cardwell's penstemon, pearly everlasting, Idaho fescue, serviceberry, snowberry, and fireweed. Each area was photographed before treatment and will be tracked for about three years. Study results will be presented as they become available.

Researching Silvicultural Treatments in California's Goosenest

AMA A research project is underway in the Goosenest AMA at Little Horse Peak to determine the extent that different combinations of silvicultural treatments (especially tree harvesting and prescribed fire) can accelerate development of late-successional forest attributes in mixed stands of ponderosa pine and white fir. Two years of mammal and vegetation baseline data have been collected, and consultation with U.S. Fish and Wildlife Service and the National Environmental Policy Act is complete. To date, the project involves twenty 100-acre plots and 13 principal scientists. Dr. Jerry Franklin told a September 1997 tour group that this research project, which is also expected to help the local economy, exemplifies what AMAs are designed to do and is in the true spirit and intent of adaptive management.

Birds and Fish Being Monitored

Neotropical Birds and Forest Management Being Studied in Goosenest AMA A report titled *Bird Associations with Forest Characteristics on the Goosenest Adaptive Management Area* was completed in September 1997. The study developed and tested multivariate analysis techniques using a bird census point-count network to demonstrate the potential for predicting effects of management activities on landbird populations. Among effects addressed were those on bird distribution related to two key issues on the AMA—the rarity of late-seral pine forests, and encroachments in invading species such as western juniper and white fir. Study collaborators were the Goosenest Ranger District, Dr. John Menke of UC Davis/Klamath National Forest, and John Alexander of the Klamath National Forest.



Smolt trap in the Little River AMA

Outmigrant Monitoring in Little River AMA The BLM and USFS has completed a third year of outmigrant monitoring in the Little River AMA. The data is part of an interagency program for the Umpqua River Basin to help determine and monitor the abundance and migration timing of fish species, with an emphasis on juvenile salmonids. The smolt trap used in the monitoring is a rotary screw type designed to harmlessly capture fish swimming downstream. During spring, the trap is checked daily and fish size, species, and condition are recorded. Some fish are marked and released upstream to

calculate trap efficiency from percent to recaptures. Efficiencies average about 5 percent, meaning that 95 percent swim past the trap uncaptured. Mortality associated with the trap is low, conservatively estimated between zero and 4 percent. Because natural populations can vary tremendously year to year, the agencies committed to at least five years of monitoring. The additional two years of data are expected to more fully define the baseline and population trends, as well as provide insights into the health of the fish population and also the basin-wide habitat quality.

Central Cascades AMA *Recent Floods Generate Public Interest*

Peak flood events during 1996 and 1997 sparked public interest in the ecological, safety, and water quality effects of floods. Researchers at the Andrews Forest, in the heart of the Central Cascades AMA, took to rain-drenched hills and swollen rivers to witness the unfolding events and begin post-flood data gathering. The scientists were ahead of the game in their flood analysis, as the Andrews Forest boasts some of the longest term hydrologic and ecological data in the Northwest. Also, over 90 people—including scientists, technical specialists, and students—attended a week-long “Flood Pulse” held in June 1996 to study landslides, stream geomorphology, riparian vegetation, amphibians, and stream ecosystems.

Hayfork AMA *Non-Timber Forest Products Being Studied*

Residents of small communities in the Hayfork AMA vicinity are increasingly turning to harvest of nontimber forest products as a means of supplementing their income. These products are being studied in a three-pronged research led by Dr. Yvonne Everett: applied biological and ecological research, economic development, and communication/education networks. Test plots are in place to determine long-term harvest impacts on several species: prince's pine (*Chimaphila umbellata*), yerba santa (*Eriodictyon*

californicum), St John's wort (*Hypericum perforatum*), and mullein (*Verbascum thapsus*) The plants are being measured for pretreatment stem density and height, as well as harvest biomass Plots will be remeasured annually for several years and new species added GIS modeling and gradient analysis is being continued to develop methods for predicting occurrence, quality, and harvest timing of nontimber forest products

Economic development focus is on identification of markets, marketing strategies, and new and value-added product development to increase returns for people in the nontimber forest industry To date, this effort involves only advice and some technical assistance where private individuals are independently formulating herbal/medicinal products

The third focus involves developing networks for information sharing and cooperation among wildcrafters and between wildcrafters, buyers, and agency staff Areas of needed improvement for which projects have been initiated include

- Changes to the Forest Service permit process
- Development of a non-lingual instruction module on sustainable harvest methods for gatherers
- Development of a process to monitor harvest of nontimber forest products on Forest Service lands
- Publication of woods ethics guidelines developed by wildcrafters
- Hosting of the third annual Willow Creek Non-Timber Forest Products Workshop

Workshops are the keystone for information sharing Presentations and panel discussions addressed mushroom harvesting, research studies, and the marketing and certification of nontimber forest products Event sponsors besides the Pacific Southwest Research Center were the Shasta-Trinity and Six Rivers National Forests and Hayfork AMA, Trinity Alps Botanicals, and High Mountain Herb Cooperative

Contract Data Being Collected in Northern California

The Trinity National Forest is gathering information on contracts—total number and type, as well as values, contractor identification, bid procedures, and length and scope The first phase involved compilation of a 5-year history of Forest Service contracting and employment, which was collected by interviewing contractors, timber sale purchasers, and Forest Service staff The second phase is an ongoing system tracking who gets contracts and timber sales Preliminary results have been shared with the Forest Service, and a final report is expected in early 1998

Cispus AMA Mapping and Database System Being Developed for Non-GIS User

Adaptive Management Areas have an exciting challenge ahead How do we document and track all research and monitoring projects on AMAs, and the lessons we learn through these efforts?

Staff at the Cispus AMA in Washington state hope to meet this challenge with an inventory and monitoring geographic information system (GIS) being developed to store natural resource data and data-collection protocols The system's design emphasizes a user-

friendly interface for end users between corporate GIS database systems, and a format that documents and stores learning. The approach will focus more on process than data collection. The contract also specifies development of an interactive interface and incorporation of existing or new databases without requiring program modifications, including national biophysical databases. A database field test in Winter 1997 on the Cispus AMA for entry of both formal and informal research and monitoring projects, includes any social research and learning.

Standards and Guidelines

The following stories highlight some activities being done in AMAs on survey and manage species, habitat development, commercial thinning, and management of down logs, which were among the resource values addressed in the Northwest Forest Plan's standards and guidelines.

Cispus AMA Survey and Manage Species

Allotropa virgata, commonly called Candy Stripe, is a Survey and Manage strategy 1 and 2 species identified in the Northwest Forest Plan. Although considered rare throughout its range, *Allotropa virgata* is locally common in some areas, including the Cispus AMA. The *Allotropa virgata*'s extremely small seeds are low in energy reserves and therefore may require relatively unfragmented habitat to promote genetic viability. It thrives in low-light such as closed-canopy stands where other understory plants are unable to survive. Commercial thinning activities may open the canopy and increase competition for resources.

There is no region-wide strategy for management of *Allotropa virgata* and also very little data on known locations within the Gifford Pinchot National Forest in western Washington. The focus of the *Allotropa virgata* study is the plant's distribution and response to previous management activities. Two habitat/management types were investigated—managed plantations previously clear-cut and later re-entered for commercial thinning (intensive management), and natural origin mid-seral stands (no management). Parallel transect plots were randomly selected within a specified elevation range.

Initial results indicate that *Allotropa virgata* is rare even within apparently suitable habitat. Two previously undocumented sites have been recorded, both within unmanaged and unfragmented closed-canopy sites having abundant coarse woody debris and a duffy substrate. Identification of these sites helps in analyzing habitat requirements and species distribution and in identifying potential monitoring sites. This study is also testing the effectiveness of using a Global Positioning System (GPS) to locate survey plots in forested terrain, as well as ground-verification of Geographical Information System mapping.

Olympic AMA
*Habitat
Development
Studies*

Young stands (30-70 years old) in Washington state's Olympic National Forest are being tested for accelerated stand development in a Habitat Development Study. Strategies being explored include variable density thinning, understory establishment, and changing of coarse woody debris patterns. Eight study sites established across the Forest have been extensively sampled for pretreatment conditions, especially small mammal populations and coarse woody debris amounts and distributions. Silvicultural treatments commenced in FY 1997 and will continue for at least two additional years. To date, the treatments have been successful, with timber operators doing a good job of removing designated material and protecting residual stands and study site features. The intensive post-harvest monitoring will expand understanding of treatment effects on small mammal populations.

**Commercial
Thinning**

On the Olympic AMA—where a majority of timber consists of younger stands—commercial thinning to increase tree size and structural diversity is a key objective. In the past two years, close to 20 million board feet of timber was offered from this AMA, almost all from commercial thinnings. Each entry was unique, with different approaches to maintaining or enhancing habitat quality and accelerating development of late-successional characteristics while providing economic outputs. Two sales were visited in Summer 1997 by the Olympic Province Implementation Monitoring Team as part of a regionwide Northwest Forest Plan effort.

Little River AMA
*Managing Large
Down Logs*

Fallen trees on the forest floor function as wildlife habitat and reservoirs of soil nitrogen leading to increased forest productivity. The importance of this resource was recognized in the Northwest Forest Plan, which directed agencies to develop down wood prescriptions for different stand types in managed forests, the intent being to provide a renewable supply. In 1997, the Umpqua National Forest, Roseburg BLM, and the U.S. Fish and Wildlife Service pooled resources to establish a baseline for natural levels of down logs. The agencies inventoried down wood abundance in unharvested stands in the Little River AMA to determine its range for landscape characteristics including the stands' disturbance history (fire), age, aspect, elevation, and climate. The inventory considered that the natural levels of down wood are extremely variable depending on the characteristics. The next step is to develop management guidelines for large wood.

Landscape Projects

Numerous landscape projects are underway in the AMAs, from landscape modeling with input from universities, to on-the-ground projects including restoration, watershed forest simulation, and projecting landscape models as much as 200 years ahead. The following stories give details on these projects.

Olympic AMA University of Washington Assists With Landscape Modeling

Olympic USFS staff are working with Dr. Chad Oliver and graduate students from the University of Washington's College of Forest Resources to develop a landscape model for the Olympic AMA. The model covers over 40,000 acres in the Soleduck and Calawah River watersheds, but can be expanded to the entire AMA. In 1997, district stand data, geographic information, and growth functions were adapted and input into Dr. Oliver's Landscape Management System (LMS). The resulting model provides stand and landscape level visualizations through time for a wide range of silvicultural strategies, and also quantifies projected outputs. In addition to greatly enhancing LMS model capacity by refining and expanding several components, the cooperative effort provides a powerful tool for projecting and demonstrating the effects of potential landscape-level treatments. The model will also help to display, in a more understandable format, the long-term landscape patterns resulting from possible activities to AMA partners and publics.

Snoqualmie Pass AMA Restoration Projects

Restoration has been done at several places in the Snoqualmie Pass AMA in western Washington: the Pacific Crest National Scenic Trail, the Cathedral Rock Trailhead, and Kachess Campground. In addition, sediment problems at 11 bridge sites in the AMA were alleviated by hardening approaches to remove the sedimentation source.

Pacific Crest Trail Numerous segments of this Scenic Trail, totaling 30 miles between Pollalieu Ridge and Blowout Mountain, were constructed or reconstructed. The work included re-establishing trail tread, removing rocks, roots, and encroaching brush, minor relocation of the trail, and installation of water drainage structures.

Cathedral Rock Trailhead rehabilitation is underway on this main access to the Pacific Crest National Scenic Trail, local lakes, trail loops, and other destinations. The project is intended to define the trailhead, eliminate sedimentation caused by wheel tracks, provide accessible sanitary facilities, remove vehicular access to streamside campsites, and terminate wheeled vehicle encroachment in the meadow. Work will involve leveling part of the parking area, constructing and hardening road and parking surfaces, placing traffic controls, installing a toilet, developing interpretive signing, and constructing of drainage structures and a new trail section to reduce sediment movement to the stream.

Kachess Campground Work was done at this campground to restore the function of riparian reserves along Box Canyon and Gale creeks while maintaining quality camping experiences. The project involved replanting native riparian vegetation, placing erosion control coconut matting with biodegradable thread, constructing barrier fence to divert recreationists away from sensitive streambanks, and providing hardened access routes to the streams. An interpretive trail was also constructed adjacent to Gale Creek to explain how vegetation and large woody debris provide aquatic and wildlife habitat.

Cle Elum River The primary restoration objective on the Cle Elum River is to support continued recreational use in desirable locations in the watershed, while protecting areas susceptible to damage but vital to a healthy stream and plant community. Eight central hubs of use were identified, each containing multiple dispersed areas. Restoration techniques varied, from loosening compacted soils, to using crushed rock surfacing materials to delineate acceptable vehicle routes and parking areas, placing barrier rocks to contain vehicle travel, and transplanting local native vegetation to stabilize soils and streambanks.

**Applegate AMA
Watershed
Forest Simulation
Project**

An innovative research project underway for the Applegate River Watershed involves development of a model for fire-prone landscapes of southwestern Oregon. The project, initiated by Dr. Norm Johnson and scientists from the College of Forestry at Oregon State University, is based on a recent study in California's Sierra Nevada Mountains, which simulated forest and watershed conditions under different management practices emphasizing interaction of forests, fire, watersheds, and people.

The model uses Geographic Information Systems (computerized maps with associated data) to simulate various results across space and time. Using existing information (vegetation, slopes, and watershed conditions), the model projects potential conditions for different management practices, then sets up different scenarios based on various weather patterns and potential disturbances such as wildfire or flood. The model shows pictures of likely outcomes valuable in understanding long-term implications for management across large landscapes.

"We plan to adapt this approach for use in evaluating alternative management practices for the forests, streams, and watersheds of the Applegate River Watershed. We hope to involve scientists from Oregon State University, the University of Washington, the Bureau of Land Management, and the Forest Service as well as managers, landowners, specialists, and interested citizens."

- Dr. Norm Johnson

Project goals are being set with the help of community residents, the Applegate Partnership, and the Applegate River Watershed Council. Federal agency involvement consists of technical advice on request. Funded by the OSU College of Forestry with some monies from a Boise Cascade endowment, the project is providing local people an opportunity to learn about fire ecology, forestry, aquatic and wildlife ecology, forest

operations, and planning The prototype model should be ready for evaluation by Spring 1998 and refinement through the following year

For additional information, see the website for Applegate Watershed Forest Simulation Project <http://cof.orst.edu/research/safeform> or contact the Applegate River Watershed Council at (541) 899-9982 or email (arwc@mind.net) The Council is facilitating communication between the team and interested people

Applegate AMA Landscape Planning

In the last several years, all units in the Applegate AMA have changed planning from a unit-by-unit approach to a landscape level The process begins with watershed analysis and community involvement and identifies numerous projects, often over thousands of acres Neighborhood meetings and as many as 10 field trips may be held to involve community members Among 1997 landscape projects were thinning, selective cutting, brush removal, road decommissioning, riparian area restoration, seeding of native species, and fire reintroduction on over 7,500 acres Approximately 32 million board feet of timber was sold in the timber sale portions of these projects Some projects involved traditional logging systems such as helicopter, cable, and tractor, whereas other projects had experiments in horse logging, feller-bunchers, small track-mounted machines, and other types of equipment Compared to past projects, fewer roads were constructed and more roads were decommissioned

The landscape approach, especially the thinning projects, has received favorable support from community residents Most criticism has been about helicopter noise and visual concern of the shaded fuel breaks on some ridges Consequently, as new areas are being planned, helicopter flight paths are being reviewed and fuel breaks are being modified



Field trips are held to involve community members in planning for landscape projects

Cispus AMA
*Landscape
Analysis and
Design*

Each AMA was directed by the Northwest Forest Plan to develop plans providing a shared vision for future management. Using a Landscape Analysis and Design technique developed by Dean Apostle and Nancy Diaz, Cispus AMA began to work on a shared vision of forest structure and distribution for the year 2197 to include in a landscape-level, idiosyncratic *Guide to Management on the Cispus AMA*. Various public working groups, an interagency core team, the AMA Steering Committee, and the Southwest Washington Provincial Advisory Committee participated in the effort. The Landscape Design is an integral part of the AMA's vision and Guide to the future.

**Northern Coast
Range AMA**
*Landscape-Level
Designs for
Adaptive
Management*

Scientists and the AMA subcommittee of the Coast Range Province Advisory Committee in western Oregon are helping develop a process for designing and implementing landscape-level adaptive management. Groups of subwatersheds ranging between 5,000 and 10,000 acres are selected, in a statistical similarity analysis process, to apply various treatments over many decades. With careful experimental design and monitoring, the treatments should help answer numerous ecosystem management questions regarding larger scales than traditional research can provide.

**Central
Cascades AMA**
*Projections Over
200-Year Period*

A landscape management strategy, based partially on an interpreted historical range of variability, has been assembled by a team of managers and scientists for a forested landscape in the central western Cascades of Oregon. Future timber harvest and corresponding landscape patterns were projected across the landscape for a 200-year time period and analyzed. Results show that this strategy produces larger patches, greater amounts and more broadly distributed late-successional habitat, and less old-to-young forest edge in comparison with existing conditions, as well as an alternative future landscape resulting from literal application of the standards and guidelines in the Northwest Forest Plan.

Goosenest AMA Ecosystem Analysis Receives Recognition: The Region 5 Forester's Honor Award recognized the Forest Ecosystem Analysis Team and Goosenest Interdisciplinary Team for the Goosenest AMA Ecosystem Analysis. Despite the area's size and complexity, the analysis was completed in eight months. The analysis saved taxpayers' dollars, met local expectations, increased productivity and program development, and is reducing preparation time of environmental assessments.

Local Outreach and International Leadership

To many people, local outreach and international leadership are the most exciting parts of partnering. These efforts provide an opportunity to share what has been learned in the AMAs and to learn more about natural resources and how they affect each of us, not only in the local areas of the AMAs but in foreign countries as well. Some of the stories provide internet addresses that are helpful in providing additional or future information, and other stories provide lists of publications or references to AMA guides.

Olympic AMA Community Helps Develop AMA Guide

The Olympic AMA's most significant focus in 1997 was the community involvement process, which will form the basis for their AMA Guide. This process included three different approaches to informing Forest partners and publics about the AMA and gaining their insights and visions for its management. The first was a series of meetings with individuals or small groups having known interests in AMA operations, including current and potential cooperators in AMA activities. The second was a series of six public workshops held around the Olympic Peninsula to explain the AMA and hear ideas and concerns on the focus of AMA activities. The third, an ongoing process since the AMA's inception, was close coordination with the Olympic Province Advisory Committee, which provides guidance, review, and advice on AMA proposals.

As a result of these various meetings, the community selected nine primary focus areas for the AMA for 1998. These topics range from development of landscape-scale strategies for ecosystem management, to investigation of opportunities for reinvesting AMA receipts in AMA operations, to exploring a community-developed assessment of recreation opportunities around the peninsula. While developing this action plan was successful, the undertaking did more than identify emphasis areas. Along the way, numerous new partners were enlisted, the level of knowledge about the AMA and its purposes soared, AMA managers learned many new things about the needs and concerns of peninsula citizens, and new communication networks were built. Together, these make a solid foundation for future collaborative efforts.

Central Cascades AMA Collaboration with Watershed Councils

The Nestucca-Neskowin Watershed Council and the Yamhill Basin Council have formed AMA subcommittees to work closely with BLM, Forest Service, and private land managers on landscape-level approaches to forest management in their watersheds. These subcommittees are open to any interested persons. They serve as a forum for members of local communities, interest groups, tribes, and other government agencies to exchange information, discuss ideas, and search for common ground among diverse viewpoints. Through their councils, these subcommittees may also participate in initiation, development, implementation, and monitoring of specific projects on Federal lands in the vicinity.

The Applegate River Watershed Council and the Applegate AMA are in their third year of close working relationships sharing GIS data, technical expertise, joint field trips, and planning. The Applegate River Watershed Council and Medford District BLM received another grant from American Forests to continue cooperative planting of restoration species in BLM's Provolt Nursery.

Learning About Floods

Several public outreach efforts of the Cascade Center for Ecosystem Management focused on floods

- A Flood Field Tour held in October 1996 for public land managers was attended by 55 people and received front page coverage in the Eugene *Register-Guard* newspaper
- Public Broadcasting televised an Oregon Field Guide program on February 20, 1997. The program featured a flood flight trip to the Andrews Forest
- A Flood Forum designed for the public was held in May 1997 and attended by 100 people. Presenters were from USDA Forest Service and Pacific Northwest Research Station, Oregon State University, Oregon Dept. Of Forestry, Oregon Forest Industries Council, Pacific Rivers Council, McKenzie Watershed Council, and the University of Oregon
- Twenty people attended the Road Sediment and Hydrology Workshop held in September 1997 for scientists addressing road issues throughout the Pacific Northwest

Recent research publications

- Jones, J A and Grant, G E 1996 Peak flow response to clearcutting and roads in small and large basins, western Cascades, Oregon. *Water Resources Research* 32(4) 969-974
- Wemple, Beverley C, Jones, Julia A, Grant, Gordon E 1996 Channel network extension by logging roads in two basins, western Cascades, Oregon. *Water Resources Bulletin* 32 (6) 1195-1207

Web browsers can check the internet (www.fsl.orst.edu/lter) for flood data, photographs, and preliminary analysis information

Community Involvement in Project Planning

What the BLM and Forest Service (three USFS Ranger Districts and two BLM Resource Areas) have learned in the Applegate AMA in engaging communities in project planning is reflected in a *Community Involvement Guide*. The guide, developed on the Applegate Ranger District, illustrates various approaches and efforts for public involvement and incorporation of community goals into planning. It offers a menu of methods for engaging people in productive interaction and lists available resources. The guide will be tested by Interdisciplinary teams across the AMA and also reviewed by community members, organizations, and agencies. For more information or copies of the Guide, contact Terry Black (541) 899-1812.

Goosenest AMA Public Out-reach in California at Siskiyou and Tulelake Fairs

Fairgoers stopping by the USFS booth at northern California's Siskiyou County Fair were live on the World Wide Web, thanks to ORE-CAL Resource Conservation and Development (RC&D) using a digital camera to photograph visitors and staff for web transmission. The booth was staffed by Forest Service, partners, and the public. Posters displayed in the fair booth featured the Bitterbrush Study, Siskiyou Ecosystem Management Training Center and Butte Valley Watershed Project, Neotropical Birds and Forest Management, and ORE-CAL RC&D projects.



Goosenest AMA and Partners 1997 Fair Booth

The Tulelake Fair booth was staffed with personnel from three National Forests (Klamath and Modoc in Region 5 and Winema in Region 6) Doublehead and Goosenest Ranger District, Winema Supervisor's Office fire prevention, and Goosenest AMA were primary partners. Smokey Bear was on hand to promote fire prevention. Fair displays included posters of Butte Valley Watershed Project and Burning for the Future with prescribed fire, as well as historical photos from railroad logging days for comparison to today's forest structure.

Both fair booths generated interest from other agencies, schools, and local residents. Over 50 names were added to the mailing list for Goosenest AMA Updates. Siskiyou Public Health Department offered to help, through the Smoke-Free Program, with the Environmental Education Program on the Butte Valley Watershed Project. In response to these contacts, funding is being sought from Public Health Program grant monies for purchase of additional monitoring equipment for students, program dollars, and staffing.

International Outreach

For the International Model Forests Network, which has similar objectives as Adaptive Management Areas, 1997 was a noteworthy year. Three AMAs (Hayfork, Applegate, and Cispus) became official members of the organization. Originated by the Canadian government, the international network involves Russia, Mexico, and Malaysia with almost two dozen other countries wanting to participate in one form or another. The network's objectives are to accelerate sustainable development in forestry, promote development and application of innovative concepts and techniques in managing forests, and encourage and support the testing and demonstration of best sustainable forestry practices available.

The past year was especially noted for having an increased exchange of information, beginning with Tim Tolle of USFS Region 6 being invited to speak to the World Commission on Forests and Sustainable Development and the International Institute for Sustainable Development. Tolle used the unique story of the Central Cascades Adaptive Management Area in sharing the trials and successes experienced with trying to apply adaptive management.

A highlight of the year was the October meeting in Chihuahua, Mexico. Fourteen countries were represented during discussions and presentations concerning the role of the network. Adaptive

Management Areas were represented by Su Rolle, Mike Lunn, and David Steinfield (all of the Applegate AMA), Margaret McHugh and John Hawkins (Cispus AMA), Julia Riber and Roberto Ramirez (Hayfork AMA), Joy Berg of the USDA Forest Service's Washington Office representing International Forestry, and Tim Tolle of USFS Region 6. Rolle, Riber, and Tolle served as invited panelists on socioeconomic impacts of sustainable development programs and community development, policy and cooperation mechanisms for sustainable development programs, and desired vision for the future international network, respectively.

Several international conferences called on AMA representatives to provide talks and papers. For example, John Cissel of the Central Cascades AMA presented their landscape analysis and design approach, and McHugh did similarly for the Cispus AMA. Tolle was an invited speaker to two other conferences speaking on the role of adaptive management in reserves and measuring success for AMAs.

Perhaps the biggest successes, though, came through technical exchanges with the Chihuahua Model Forest. During the week of October 19-25, members of the National Riparian Service Team (NRST) traveled to present a workshop on managing riparian areas in collaboration with the Chihuahua Model Forest. The team included Tim Tolle (USFS Region 6), Wayne Elmore (NRST team leader, BLM), Steve Leonard (range ecologist, NRST BLM), Janice Staats (hydrologist, NRST USFS), and Forrest Berg (stream mechanics engineer, National Resources Conservation Service).

For further information on the adaptive management areas, please reference the front of the document for staff contacts and website addresses.