EDUCATION PLAN

H.J. ANDREWS EXPERIMENTAL FOREST

September 2001

Prepared by

Arthur McKee, Director
H.J. Andrews Experimental Forest
Department of Forest Science
Oregon State University
Corvallis, OR 97331
# Table of Contents

Executive Summary........................................................................................................ 3

Introduction................................................................................................................... 6

Background and History of Education Activities......................................................... 6
  Types of students involved in Andrews-related education activities................. 10

Educational Activities Associated with the Andrews Forest in 1999/2000.......... 11

Proposed Future Directions......................................................................................... 12
  Education goals......................................................................................................... 12
  Priority education issues and topics................................................................. 13
  Priority education areas......................................................................................... 15
  Role of Andrews Forest in undergraduate and graduate education.......... 16

Priorities for Next One, Five, and Ten years............................................................. 18

Education Committee................................................................................................. 19

Education Coordinator............................................................................................... 20

General Roles and Responsibilities for Institutions and Agencies...................... 21

List of Action Items...................................................................................................... 23

Appendices:
  2. Seasonal Targets for Bed Occupancy at the Headquarters Site and Day Use
     Percentages for the HJ Andrews Experimental Forest.................................. 30
Executive Summary

The education program at the Andrews Experimental Forest has been hugely successful, but the great potential to expand offerings and audiences will be impossible without more coordination and improved funding. Approximately 2500 people per year visit the Forest and participate in some form of educational activity. Approximately half the educational effort goes to field trips and one- to two-day classes involving two different audiences: 1) undergraduate and graduate classes and 2) natural resource managers. The remaining half of Andrews-related educational efforts involve: tours and talks for the general public, formal undergraduate and graduate classes for credit, K-12 students, teacher enhancement programs for elementary through college instructors, research experiences for undergraduates, and targeted tours for elected officials.

The current level of involvement, however, has come at a substantial and unsustainable commitment from the research scientists and as well as the natural resource management staff. While both groups are deeply committed to education, the infrastructure and financial support are inadequate and more commitment is needed from the agencies and institutions that share interests and responsibilities for the Andrews Forest.

The Education Plan is a result of an education-planning workshop held March 1999 and subsequent discussions and reviews by scientists and managers closely connected to the on-going education program at the Andrews Forest. These discussions have identified goals, determined current priority areas, and led to a set of action items. These are summarized below and described in detail in the main body of the Plan.

The education goals for the Andrews Forest are:
1. Promote a better understanding of how ecosystems function.
2. Foster ways to apply new findings.
3. Increase awareness of ecosystem sustainability issues.
4. Increase linkages with university classes.
5. Create the next generation of scientists, natural resource managers, and informed citizen leaders.
6. Create programs that help capture scientists and natural resource managers while they are in their K-12 years.
7. Increase programs for the general public.
8. Build good public relations.

The priority areas for programmatic improvement in the near future were felt to be:
1. Undergraduate involvement
2. Graduate involvement
3. Teacher enhancement
4. Field Station Classes
5. K-12 involvement
6. Continuing Ed
7. Public Education
8. Programs for policy makers/elected officials
The set of action items for the first two years include:

- Establish an Education Committee (October 2001)
- Education Committee undertakes tasks (begin Fall 2001, meet semiannually)
  - Compile information on existing programs
  - Develop visions for future
  - Refine objectives and targets for program
  - Revisit issue of an Education Coordinator (Dec 2001).
    - If establish position, find funding and hire Education Coordinator.
- Compile list of funding sources for education activities.
- Submit proposals.
- Conduct a simple market analysis (second half of 2002).
- Develop program for promoting use/marketing.
  - Target groups, agencies, NGOs to solicit use (e.g. Dept retreats, ODFW, Ducks Unlimited, Greater Eugene Coalition of Power Quilters)
- Work with Schoolyard LTER and SMILE teachers to develop K-12 teacher enhancement/training courses (on-going, McKee).
- Continue/expand solicitation of use by other colleges/universities.

The success of the Andrews Forest education program has been due to the interests held in common among the three parties. In the past, despite little formal structure, the program was successful because individuals were willing to work together on specific projects/programs. The loose organization of the past is simply inefficient for a large and diverse program. More coordination will be necessary as will more institutional support from all partners.

An Education Committee should be chartered with responsibility for coordinating the educational activities of the Andrews Forest and Cascade Center. The committee should be small with a member from each of the participating institutions/agencies and include the Education Coordinator. The Education Committee should have a coherent picture of what the various pieces of the education program are and determine the roles and responsibilities of the different partners.

Through the office of the Education Coordinator, OSU should be the lead party in many if not most of the educational activities. This does not mean that the other partners are not very significant contributors of ideas and instructors, but that the program should be coordinated out of the office of the Education Coordinator, and that position should be housed at OSU.

There will be times when the other partners are asked to organize field trips or other education/information events. An example would be field trips for policy makers and elected officials who have contacted the US Forest Service directly. Within-agency training sessions and information exchanges of many kinds could also be well outside
OSU’s responsibilities as well. It was felt that in most cases, responsibility for leadership among these activities would probably be quite clear.

It is expected that all partners will continue to openly contribute ideas, concepts, and instructors for the various activities as is appropriate. The current spirit of mutual support and cooperation is an important one to maintain.

The educational offerings associated with the Andrews Forest should always be viewed as neutral venues for open discussion and debate among participants and free from any form of censorship.

Introduction

The H.J. Andrews Experimental Forest was established in 1948 as a site that is representative of the Douglas-fir forests west of the Cascade Range. Like all US Forest Service Experimental Forests it is dedicated to both research and education, but the research projects have dominated the Forest’s programs over the past 50 years.

The past decade has seen a dramatic increase in the scope and variety of educational activities at the Andrews Forest. Currently, about 2500 people visit the Forest annually. The widely varying educational offerings include: field trips and one- to two-day classes involving undergraduate and graduate classes and natural resource managers; K-12 students and their teachers; formal undergraduate and graduate classes for credit; teacher enhancement programs; research experiences for undergraduates; tours and talks for the general public; and targeted tours for elected officials.

This increase in educational use has been both by design and forced by external pressures. Financially important decisions affecting policy changes in natural resource management have created a situation of increasing scrutiny of the science behind those decisions. Policy makers, natural resource managers, representatives from special interest groups, and interested members of the general public are all looking for information on how ecosystems in the Pacific Northwest function, and the Andrews Forest has responded to these requests.

The Andrews Forest community has taken the initiative to design and offer different educational projects, but that is not the scientists’ primary responsibility, and most of the activities have been unfunded. Moreover, to a large extent the educational activities have been in reaction to requests and not a carefully planned and managed program. This Education Plan was developed in recognition of the education needs and the potential of the Andrews Forest to serve those needs in a wide variety of ways. In further recognition of the importance of educational activities at the Andrews Forest, policies have been developed that specify seasonal targets for bunkhouse occupancy and day use of facilities (Appendix A).

The Plan addresses the education goals and objectives of the Andrews Forest for the next five years. It includes a list of on-going and potential activities, provides a structure that
helps direct the evolution of the education program, and details the roles and responsibilities of the partners involved. It represents a statement of where the Andrews Forest is and where is should be going that is mutually agreed upon by all of the partner institutions and agencies.

**Background and History of Education Activities**

From its dedication as an Experimental Forest, the Andrews Forest has been in the business of education. The earliest scientists provided publications that described their research and led field trips for interested land managers to see the research projects first-hand and discuss implications and applications. And, college instructors have long brought their classes to meet with and talk to the scientists.

The scope and variety of educational activities associated with the Andrews Forest made a dramatic change in 1970 with the start of the Coniferous Forest Biome Project, funded through the National Science Foundation’s (NSF) participation in the International Biological Program (IBP). The NSF funding came through Oregon State University (OSU), and brought involvement of 20-plus faculty and a similar number of graduate students. Suddenly the Andrews Forest was a major site for hands-on field experience and education of graduate students, and place for summer employment of undergraduates with all the educational experiences associated with on-the-job training. The newly involved faculty also began using the Andrews Forest for field trips, and data and research results became increasingly available for campus classes.

By the mid-70s the Andrews Forest was being used for short courses for natural resource managers. Most of these were offered through the Extension Program of OSU’s College of Forestry and included US Forest Service as well as OSU faculty as instructors. The offerings grew in number and scope and by the early 80s covered topics such as: Plant Identification; Forest Community Type Classification: Management Applications; and Structure and Function of Coniferous Forest and Stream Ecosystems.

The number of short courses on the Andrews Forest declined in the mid-80s because of decreases in federal budgets. There was also a shift in course topics during the late 80s early 90s that reflected emerging resource issues. Short course offerings during this phase included: Riparian Zones, Their Ecology and Management; Improving Natural Resource Management through Monitoring; Silviculture-Wildlife Interactions; and Ecosystem Management. Many of these were offered through OSU’s College of Forestry Conference Office as well as Extension Office. So there was a diversification of topics covered despite the overall decline in number of students in any given year. Also, during this phase, natural resource managers from federal and state agencies were increasingly asked to serve as instructors along with the scientists. It was clear that their real-world experience added credibility to the discussions of management applications of research findings.
This involvement of managers as well as researchers in the educational activities of the Andrews Forest was a natural and obvious outgrowth of the developing partnership between the two communities on the research front. Course evaluations had indicated that the participating students greatly appreciated the balance brought by having instructors from both camps. In recognition of the strength of this partnership, the Cascade Center for Ecosystem Management (CCEM) was formalized in 1991.

The Cascade Center is an education and outreach partnership involving Oregon State University, the USDA Forest Service's Pacific Northwest Research Station, and the Willamette National Forest. The mission of the Cascade Center is to develop new information about forest and stream ecosystems of the Pacific Northwest, develop and test management applications, and publicly discuss findings and their implications. Outreach to the public and land managers is the major role of the Cascade Center, and an extremely important component of the education program of the Andrews Forest. The close ties forged between Andrews-related land managers and researchers have contributed substantially to the development of new approaches to management of forest stands, riparian zones, landscapes, and watersheds in the Pacific Northwest.

The Cascade Center also assists with field trips and short courses from OSU and other college/university classes, but their main audience is land managers and the general public. The Center has developed a set of publications to meet the needs of that audience. One is a series of one-page information bulletins “One-Pagers” that cover topics such as: Young Managed Stands; Chanterelle Productivity; Long Term Ecosystem Productivity; Northern Spotted Owl; Blue River Landscape Study; Mychorrizal Fungal Mats, Dead Wood, Bugs, and New Forests; Uneven-Aged Management; Residual Stand Damage from Thinning; and Stream Restoration. The Center has also developed a very popular series of “Communications” that are multi-page publications that provide an overview of current knowledge on topics such as young stand management, green tree retention, and stream restoration. Both the One-Pagers and Communications are written for the educated natural resource manager and are not loaded with jargon.

The Cascade Center has organized several important one-time educational events that target specific issues with a high profile. These have included public forums on management issues (1994, Ecosystem Management; 1997, Floods and Forest Management) and special tours (1995, Young Stand Management; 1995, Oregon Field Guide; 1996, HJA Greatest Hits Tour for Education Providers; 1997, Small Woodland Management). Tours of the Andrews Forest for the general public are offered as well.

The Center also has organized a very popular summer campfire series, “Nature Talks” where Andrews Forest and Cascade Center scientists and staff provide overviews of current research or management issues. These presentations to the general public usually draw an audience of 60 or more every week.

The Northwest Forest Plan, adopted in 1994 by the US Forest Service and Bureau of Land Management for the “spotted owl forests” of Washington, Oregon and California, included establishment of several Adaptive Management Areas (AMAs). One of these,
the Central Cascades AMA, is largely centered in the McKenzie Valley and is an important partner in research and education activities associated with the Andrews Forest. Several research and demonstration projects within the Central Cascades AMA serve as focal points for workshops and other education/outreach programs. The Andrews Forest, Cascade Center and Central Cascade AMA have worked jointly to produce a number of very successful forums/education programs that have focused on particular topics of interest such as watershed restoration or young-stand management.

Since 1989, the Andrews Forest LTER program has hosted a continuing series of summer programs sponsored under NSF’s Research Experiences for Undergraduates (REU). The basic goals of an REU program are to immerse undergraduates in research projects and capture their interest in becoming scientists. This began as an “REU Site Program” with cohorts of 10 to 12 students each summer, and changed in the mid-90s to a coordinated set of “project REUs” where one or two students are assigned to individually-funded NSF grants. Numbers of REU students now range from three to six each year. The REU students tend to be among the best and brightest (selection is very competitive) and a large proportion continue on to graduate school. In short, this is a very successful program.

During the past 10 years, the number of campus-based classes that use data sets or other information from the Andrews Forest has increased. Colleges and universities around the region have classes that are taught by Andrews-related scientists or use the Andrews-based information and/or facilities (e.g. OSU, U of O, U of W, Lewis and Clark College, Reed College, Chemeketa CC, Central Oregon CC, Lane CC and Linn-Benton CC). These include undergraduate and graduate classes as well as extension and continuing education courses. Many of these classes also come to the Andrews Forest for one-day or weekend field trips.

Some of these college/university instructors also organize Andrews-based short courses and workshops. This sort of activity, typical of more traditional field-station classes, has been growing since the completion of a new education wing at the Andrews Forest in ’98. That education wing includes a large conference room with a capacity of about 100, and a laboratory classroom with seating for 30 students. The building is wired for access to the site’s local area network and outfitted with modern audio-visual equipment.

For the past few years, Andrews Forest scientists have participated in NSF-sponsored teacher enhancement programs. One, referred to as “Teachers in the Woods” immerses K-12 teachers in field research with Andrews Forest scientists. The intent is to convey the excitement of “science doing and discovery” as well as providing new material for their classes. Participants work as research assistants on LTER research projects and convene two to three times a week to discuss among themselves how to incorporate the information into their classes back at their home school district.

Two other teacher-enhancement classes are organized by the Northwest Center for Sustainable Resources (NCSR) headquartered at Chemeketa Community College in Salem, OR. NCSR is a “National Center of Excellence” funded by NSF’s Advanced
Technological Education Program. In partnership with the Andrews Forest, NCSR holds one workshop for college instructors and another for K-12 instructors. Andrews Forest scientists do most of the teaching in the former and contribute information to the latter. In addition, it develops ecosystem-oriented educational material and activities for grades 6-12 that utilizes Andrews Forest research findings. NCSR also has developed a web-accessible clearinghouse relating to natural resource educational materials: <http://new.chemek.cc.or.us/ncsr/.

Beginning in 1998, the NSF-funded Long-Term Ecological Research Program (LTER) initiated a “Schoolyard LTER” for students in grades K-12. The Andrews Forest LTER experienced a ground swell of interest and support from dedicated teachers in several school districts. In addition, an Oregon State University-based K-12 program, SMILE, (Science and Math Investigative Learning Experiences) has chosen to participate. SMILE represents a growing partnership among school districts and OSU to provide science and math enrichment for minority and low-income students in grades 4-12. It has been recognized nationally with an award from The White House. Andrews Forest scientists are working with SMILE districts to prepare activities that are appropriate for the schoolyard (or nearby forest, pond, stream, or field) and organize teacher enhancement workshops.

And last but certainly not least, the Andrews Forest and Cascade Center have been important sources of information for elected officials, policy makers and media representatives. The information flow for these potentially high-impact education interactions has taken a number of forms from one-on-one phone calls involving scientists or managers to specifically-designed field trips (such as the one in ’93 for Interior Secretary Babbitt) to hosting visits by members of the media (such as Jon Luoma, author of “The Hidden Forest”) to organizing and hosting interactive workshops involving scientists, managers and media (such as the Institutes for Journalism in Natural Resources in ’99 and 2000).

Types of students involved in Andrews-related education activities

The number of people participating in Andrews-related educational activities in the broadest sense grew rapidly during the late 80s and peaked in the early 90s at about 2500 per year, remaining at about that level since. There are activities that cover the range of education options from “K” through “gray”. The current mix of audiences or “students” includes:

1. scientists and technicians;
2. elementary and high school students (K-12);
3. undergraduate college students
4. graduate students;
5. continuing education students;
6. public natural resource professionals;
7. private timber and fishing industry professionals and representatives;
8. upper-level agency managers and policy makers;
9. special interest groups and non-governmental organizations (NGOs);
10. elected and appointed officials (policy makers);
11. media representatives and
12. the general public.

Despite the broad scope of on-going educational activities, coordination among them could be greatly improved. The future list of activities could be a richer and more complementary mix with a planned and carefully considered balanced set of classes and activities. Excellent facilities are now available for on-site classroom and laboratory instruction. The Andrews Forest is well positioned to make a quantum jump in the number of educational activities and students (in the most inclusive sense). This increase will require a higher level of institutional and agency commitment than in the past, however, and increased funding.

**Educational Activities Associated with the Andrews Forest in 1999 and 2000**

The following list is compiled from information on-file at the Andrews Forest and Blue River Ranger District. It is meant to be inclusive, but some activities might have been overlooked. Several educational tours a year come to the Forest unannounced, and information about them is often acquired second-hand. The area is public land and visiting groups are not required to check in or coordinate visits with the Andrews Forest office.

**K-12 projects:**
1) SMILE (Science and Math Investigative Learning Experience). Currently, it involves eight rural school districts around Oregon with some campus-based and Andrews-based activities.
2) Springfield & Eugene School Districts’ programs.
3) Salem-Keizer School District program.

**Andrews Forest-based courses and activities:**
1) Formal field-station courses (College/Univ. credit)
   - Graduate
     + examples: Field techniques, OSU; Mycology, OSU; Ecosystem Management, OSU
   - Undergraduate
     + example: Applied stream ecology, OSU; Ecology of Northwest Forests, Evergreen College
2) Research Experiences for Undergraduates, OSU.
3) Teacher/instructor enhancement courses
   - NSF-sponsored
     + Northwest Center for Sustainable Resources, Chemeketa CC
     + Ecosystem Institute (for community college teachers)
     + Schoolyard Ecology (for K-12 teachers)
4) Oregon State University/Portland State University
   - “Teachers in the Woods” (for K-12 teachers)
5) Other sponsorship
(example: Greater Los Angeles, CA School District (teachers 6th-12th grade)
4) OSU Continuing Education
5) OSU Extension
6) Agency-sponsored short courses/information sessions
   (examples: Young-stand thinning and diversity workshop, Willamette National Forest; Blue River landscape study update, Willamette National Forest)
7) Field Trips (one- to two-day)
   K-12
   Univ. classes
      Graduate
      Undergraduate
      Professional
      Science
      Management
      Policy/Elected Officials
      General Public
8) Media-oriented field trips/workshops
9) Campfire talks

**Oregon State Univ. campus-based courses:**
1) Graduate courses
   (examples: spatial pattern analysis; limnology; geomorphology; hydrology; forest ecosystems)
2) Undergraduate courses
   (example: limnology)

**Other College/Univ. campus-based courses:**
1) Graduate
   Univ. of Oregon.
   Univ. of Washington, Seattle.
2) Undergraduate
   Evergreen College, WA.
   Univ. of Oregon.

**Proposed Future Directions**

This section of the Plan defines appropriate goals, selects priority educational areas, suggests an organizational structure, and proposes a timeline and sequence for development of an educational program at the Andrews Forest. Most of the ideas and concepts presented below were derived from an educational workshop held in March of 1999. These have evolved slightly based on input from earlier drafts of this Plan.

**Education goals**
The following education goals are proposed as appropriate for the existing facilities and partnerships among the institutions and agencies currently involved with the Andrews Forest:

1) Promote a better understanding of how ecosystems function.
2) Foster ways to apply new findings.
3) Increase awareness of ecosystem sustainability issues.
4) Increase linkages with university classes.
5) Create the next generation of scientists, natural resource managers, and informed citizen leaders.
6) Create programs that help capture scientists and natural resource managers while they are in their K-12 years.
7) Increase programs for the general public.
8) Build good public relations.

**Priority educational issues & topics**

Given an overwhelming array of options, the needed is clear to focus on a small set of objectives to realistically build a viable education program. The following list of topics, issues, or items are important considerations in the development of any education program for the Andrews Forest.

Important issues/items:

1) Need for an education coordinator.
2) Establishment of an Andrews Forest Education Committee.
3) Develop financial support, and work toward endowment to support efforts.
4) Mission of education program needs to be clear.
5) Improve relations with home institutions and agencies.
6) Conduct some form of market analysis.
7) Identify desired components of education program
8) Promote site use for education.
9) Create a long-term structure of promoting education at early grades that sets the stage for continuing at OSU and U of O.
10) Make PIs/scientists/researchers involvement as efficient as possible.
11) Involve students in outreach kinds of service activities to: local natural resource agencies; landowners; local gov’ts; and non-gov’t organizations (TNC, Trout Unlimited, etc.).
12) Explore/develop other educational technologies and tools such as: traveling exhibit(s); roadside exhibit(s); self-guiding tours; or low-powered radio broadcasts.

Many of the items above are self-explanatory, but others require some qualifications and discussion.
The need for an education coordinator has been often mentioned as an essential ingredient for success. The exact roles and responsibilities, the credentials and skill set remain open for discussion, but it is clear that there is no one currently available who has the time to properly coordinate a developing program. The current situation is an ad hoc one, with the Andrews Forest Site Director functioning in a stop-gap manner, the public education specialist of the Cascade Center stepping in for some components, and the individual scientists and managers making themselves available for, and sometimes leading, short courses and field trips. This is simply not an appropriate situation for the current demand and is patently inadequate for any enlargement of scope or improvement in coordination.

The education coordinator cannot operate without support and guidance. It was felt that a small Education Committee comprised of representatives from the principal partners is essential to provide advice, counsel, support, and within-institution leadership. The Education Committee would have other functions as described below (p 18).

The need to secure additional funding for the educational programs is obvious. The single biggest obstacle to “doing the job right”, whatever the job, is stable funding. This will require buy in from the partners as well as an aggressive campaign to identify funding sources and prepare proposals. Some up-front funding will be needed to define the scope, set the stage, and prime the proposal pump. Such support should be distributed among the participating agencies and institutions.

The mission of the Andrews Forest education program needs to be clearly defined, and a mechanism must be in place to allow its evolution. This will require an iterative process involving institutional and agency commitment to such coordination, and will reflect sources and amounts of available funding. The Education Committee is believed to be the appropriate forum/venue for this discussion. The scope and program content should be viewed as an ever-evolving mix that is a function of funding and resources.

The process by which the mission is evaluated and defined should help improve relations within and among the home agencies and institutions. Any successful program will need a strong buy-in by the respective parties, and that is only achievable via open discussions with principal representatives of all partners present. And, the education coordinator should establish and maintain open lines of communication among the partners at many levels in the respective hierarchies.

Marketing and promotion are clearly essential components for success. Even a rudimentary market analysis would assist in identifying a “marketable mix” of activities. This could be an exercise of the College of Forestry Conference Office, or OSU’s continuing education resources with assistance from the education coordinator. A simple promotional program could be developed that capitalizes on resources within the agencies and institutions (mailing lists, announcements, web pages, etc).

Widespread support is often voiced for the Schoolyard LTER program, and NSF funding should be sought to extend that effort. The intent of the Schoolyard LTER is to make
students more aware of the natural world around them, to better understand environmental relationships, and develop a greater appreciation of their dependence on natural resources from air to wood. An additional motive is to capture some students into the sciences or science-based professions such as natural resource management.

One aspect of the burgeoning education program is very clear, the need to make the time that scientists and managers spend on educational activities as efficient as possible. There will always be a self-filtering process with those invited to participate simply saying “No”, but the stage must not be set for unrealistic or inappropriate expectations. We currently have a great deal of pressure on the participating “instructors” to take time away from their everyday responsibilities and become involved in short courses and field trips. This should not be allowed to escalate.

Student involvement should be promoted in service and outreach activities to state and federal agencies, NGOs, local governments, and small woodland owners. The basic concept is to provide students with real-life educational experiences of making presentations to groups or conducting simple pro bono professional services. Questions about who would coordinate or facilitate this kind of student involvement remain.

It is obvious that any educational program needs to keep up with the latest in technological educational tools, and participating instructors should have a very broad sense of how to capitalize on “teachable moments”. A successful program will always be evaluating both tools and situations for improving information flow. With ideas flowing among the participating instructors and the Education Committee, we might see various educational activities emerge such as traveling exhibits, self-guiding tours, distance learning, or low-powered radio broadcasts. These kinds of activities may not be top priority, but people in the education program should not ignore opportunities in these areas.

**Priority education areas**

Several discussions over the past months have identified the set of educational areas and target audiences that should receive top priority (listed below). Most of these are currently in place to some degree but need more coordination and support to truly flourish. The order offered below is not meant to be rigid. It is recognized that funding may be easier to obtain for some of the lower priority areas and such sources should be capitalized upon, in other words considerations should be made regarding time investment vs. payoff.

1. **Undergraduate involvement**
   This should include both on-campus and field station-based class and lab activities. The two areas should be both increased and better coordinated.

2. **Graduate involvement**
   Three specific areas need improvement: on-campus class and lab projects; research; and increased opportunities for teaching.

3. **Teacher enhancement**
Programs for both K-12 teachers and college instructors are among the most popular and successful of on-going programs and should be bolstered.

4. Field Station Classes
The number and scope of traditional field station classes (typically one- to three-weeks duration) taught at the undergraduate and graduate levels should be increased.

5. Continuing Ed
These activities represent a major on-going component, but can be better coordinated and the mix reviewed and further developed. It could range from the traditional field- or class-oriented extension activities to enlargement of web-based information sources to development of distance-learning packages.

6. Public Education
More opportunities for public education need to be developed, from one-day forums to annual open-house field trips to educational videos to campfire talks. This is an area of great need and potential for growth, and should be given high priority. It is also an area of overlapping responsibilities with the Central Cascades Adaptive Management Area with whom efforts should be coordinated.

7. Policy makers/elected officials
Working with the connections of the partner agencies and institutions, increased opportunities should be developed to meet with this group and discuss information needs.

Role of Andrews Forest in undergraduate and graduate education

A concerted effort needs to be made to market the Andrews Forest as a place for education on how to conduct research. This effort should initially focus on OSU but should be expanded to include involvement of other colleges and universities in the Pacific Northwest, especially the University of Oregon. As a part of this effort, a slide presentation could be made to deans, department heads and faculty to expound on the existing opportunities and potential resources of the Andrews Forest. More can be done to raise the level of consciousness at the Dean and VP levels on the contributions that the Andrews Forest makes to OSU in terms of research, funding from grants, teaching, teaching aids and national and international exposure and prestige.

A. Possible ways to increase undergraduate education activities
Standard course work
- The proposed Educational Coordinator and Education Committee need to examine classes at OSU and U of O that could be taught in whole or in part at the AEF. The best time of year for these activities would be when research is not in full swing. There are opportunities for a wide range of classes at the U of O to use the AEF as a daytime field site/laboratory. Because of the proximity of U of O to the AEF, it is practical to do day trips that would not require any special logistical support.
• A for-credit 2-3 week course could be taught in May through June or in Sept. that would give undergraduates an overview of how forest ecosystems work in preparation for independent research. This could be patterned on the front end of the old REU program but in this case, the students would pay tuition to attend.

• There could be more done to encourage truly interdisciplinary courses at the AEF which could combine journalism, photography or film making with science.

Interns/REU students

• Look for alternative sources of support. The Education Coordinator could look to foundations for possible support for undergrads working at the HJA including reestablishing the institutional REU program that was so successful.

• Majors in Environmental Studies at both U of O and OSU are required to do independent research (participatory research experience). This is a potential source of interns and student workers for AEF scientists. This could also be a way of generating funding for base-level support.

• A web site could be developed in which AEF scientists could post relatively simple projects at the AEF that would fulfill a need for undergraduate research project. These could be projects that would require a relatively low input from the PI that could provide data for on-going long-term projects.

• Some mechanism needs to be in place to match up potential interns, volunteers and students needing research projects or wanting research experience with AEF scientists and their graduate students. The Director is currently carrying out this function informally. Perhaps this could be an Education Director function or something could be set up on the Web as mentioned above.

B. Possible ways to increase graduate student education activities

This may be the best-developed area but remains an underutilized resource for education at the AEF. Several students are involved every year in their thesis work at the Andrews, but there are many more ways that graduate students could be involved in education activities.

• In the Department of Forest Science, OSU, there are very few opportunities for teaching or mentoring students because there are no undergraduate courses taught in the Department. Graduate students might be paired with undergraduates who want to either be a part of someone else’s studies or conduct senior research projects of their own.
• Graduate students could teach introductory courses at the AEF and/or mentor undergraduates in REU programs or formal short-courses at AEF.
• Graduate students could be used to assist with conducting workshops or other tech transfer efforts at the AEF.
• The Andrews Forest could be used to a greater extent for the fall orientation courses for incoming graduate students.
Priorities for Next One, Five, and Ten years
(L = low; M = medium; H = high)

Initially developed at the education workshop, March 1999, the following list has evolved based on reviews of earlier drafts. The list represents current priorities for an education program at the Andrews Forest.

<table>
<thead>
<tr>
<th>One</th>
<th>Five</th>
<th>Ten</th>
<th>ITEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>H</td>
<td>H</td>
<td>H</td>
<td>Education Committee</td>
</tr>
<tr>
<td>M</td>
<td>H</td>
<td>H</td>
<td>Education Coordinator</td>
</tr>
<tr>
<td>M</td>
<td>H</td>
<td>H</td>
<td>Courses (campus-based)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Undergrad/Grad Courses that use Andrews facilities</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Undergrad honors theses</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Undergrad involvement in research</td>
</tr>
<tr>
<td>M</td>
<td>H</td>
<td>H</td>
<td>Courses (field-station-based)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Undergrad/Grad classes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>REU</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Internships (teaching/research)</td>
</tr>
<tr>
<td>M</td>
<td>H</td>
<td>M</td>
<td>K-12 &amp; Teacher Enhancement</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>On-site teacher training</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Schoolyard LTERs</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Web-based interactive system</td>
</tr>
<tr>
<td>M</td>
<td>M</td>
<td>M</td>
<td>Public Education</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Public workshops/tours</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Elderhostel</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Integrated art/science workshops</td>
</tr>
<tr>
<td>M</td>
<td>M</td>
<td>M</td>
<td>Continuing Education</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>On-site and campus (target professionals)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Distance education</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Web-based classes, tours</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Schoonmaker info concept</td>
</tr>
<tr>
<td>L</td>
<td>L</td>
<td>L</td>
<td>Marketing/Promoting Site Use</td>
</tr>
</tbody>
</table>
**Education Committee**

An Education Committee needs to be established and chartered with responsibility for coordinating the educational activities of the Andrews Forest and Cascade Center. This should be kept rather small with a representative from each of the participating institutions and a lead from the priority education areas (K-12, undergraduate, graduate, field station courses, continuing education/extension, public, managers/policy makers, and teacher enhancement). Some members could wear two hats. It should be formed with input from the partners as to composition, including input from the various Colleges at OSU that have faculty and classes that utilize the Andrews Forest (Forestry, Agriculture, Science, and Liberal Arts). Once an Education Coordinator position has been filled, he/she should also be a member.

Institutional/agency representatives could include: Associate Dean for Education, College of Forestry; Andrews Forest Site Director; OSU Lead Scientist for the Andrews Forest; US Forest Service Officer-in-Charge; Information Officer, Pacific Northwest Research Station; and Deputy Supervisor, Willamette National Forest. Other possible members might include a representative from the private sector (perhaps a member of the Forest Research Laboratory advisory committee) and someone to represent NGOs.

Committee membership might include:
- Scott Reed, Assoc Dean for Education, College of Forestry
- Cindy Miner, Information Officer, Pacific Northwest Research Station
- Rob Iwamoto, Deputy Supervisor, Willamette National Forest
- Fred Swanson, US Forest Service Officer-in-Charge, Pacific Northwest Research Station
- Mark Harmon, OSU Lead Scientist for the Andrews Forest (lead for graduate)
- Art McKee, Andrews Forest Site Director (lead for K-12 and field station)
- Judy Li, Assoc. Prof., Fish and Wildlife, OSU (lead for undergraduate)
- Mike Cloughesy, Dir Outreach Ed, CoF, OSU (lead continuing education/extension)
- John Cissel, Science Liaison, Willamette NF (lead for managers/policy makers)
- Pam Druliner, Public Ed Specialist, Forest Science, OSU (lead for public)
- Wynn Cudmore, Professor, Chemeketa CC (lead for teacher enhancement)

The position of Chair would be selected by the Committee and rotate at two-year intervals.

The Education Committee should have a coherent picture of what the various pieces of the education program are and determine what the roles and responsibilities are of the different partners. Recognizing that funding and institutional/agency programs are always in flux, it is probable that the roles and responsibilities of the different partners will change and some flexibility needs to be built in to the coordination of the educational program. The Education Committee should be the forum in which these changes are discussed and negotiated, and where opportunities are aired and plans created to capitalize on those opportunities.
Tasks for the Education Committee over the next two years include:

- Compile a description of the existing priority education areas (i.e. undergraduate, graduate, K-12, field station classes, continuing ed, etc.) using a common format covering types and numbers of programs, whether routine or one-time events [if routine, program history/duration], participants served, funding sources, limits/potential, vision for the future). The desire is to have the resulting compilation in an easily digestible, visual format. This effort would be led by the leader of each focus area and coordinated by Fred Swanson. The target product is a characterization of our existing program to drive Education Program discussions and to share with leadership of our partner institutions and others.

- Refine direction of the Andrews education program through discussions over the 1-2 year period.

- Reconsider the Education Coordinator position in light of the current context and the operations of the Education Committee. What is the position’s role (e.g., an overall coordinator and chair of the Education Committee or more focused on K-12 or other individual or combination of focus areas)? Guide group decision about the Education Coordinator position and bring us to closure on the issue (establish or not establish).

- Revisit audience priorities and why they are priorities. Display as a matrix of audiences X partners. Consider priority in relation to support.

- Develop a time line to show how education activities have ramped up over history.

- Revisit issue of demand for facilities use at present and in the future.

- Revise the Education Plan in about 2 years time to reflect the progress achieved by the above tasks and operations of the Committee.

Should the position of Education Coordinator be established, the Education Committee should directly provide the Education Coordinator with guidance on priorities and timeframes for moving ahead. To that end, an annual plan of work for the Education Coordinator should be drafted with direct involvement of the Education Committee. It should also ensure and work toward open and adequate communication among the various parties/participants.

**Education Coordinator**

Several questions need to be resolved about the position of Education Coordinator by the Education Committee before the position is established and a person recruited:

- What should the overall scope of duties be?
- Should the person be an educator as well as a coordinator?
- Is the job more one of facilitation or direction of a program?
- What is the role of the position in curriculum development?
- What fraction of this position’s time should involve securing funding?
- What are the primary domains/audiences?
  - Academic?
  - Professional?
Public?
Where should the position be located?
What is the appropriate academic home and physical location of office?
Where should the position fit in the administrative structure?
What is the position’s role in establishing policy?

While the full set of tasks and responsibilities would need to be determined, some of the elements were quite clear:
- Need to coordinate among on-going courses/activities;
- Ability to administer budget and raise funds;
- Develop/schedule annual program of activity;
- Solicit use and market program, conduct a market analysis;
- Develop/compile relevant curricula; and
- Network among user groups, researchers, stakeholders, and similar education & information groups.

Different models of an Education Coordinator that could be examined include: similar positions at other LTER sites; the education coordinator at the Mt. Pisgah Arboretum in Eugene; Forestry Extension (OSU) has several positions that might be copied, but this would seem to be a departure from the traditional extension role in the scope of possible activities.

Suggested alternatives for employment status range from a full-time position, to a fraction of a faculty FTE, to a fraction of a grad student’s time. Possible short-term mechanisms for providing an Education Coordinator include: transfer one of the current extension foresters to AEF; assume these education roles within the Sustainable Forestry Partnership; and use a grad student in Forest Resources Department’s Education and Extension graduate program. It is highly likely that a graduate student would not provide adequate leadership, given the current scope of activities.

**General Roles and Responsibilities for Participating Institutions and Agencies**

There are many colleges, universities, and state and federal agencies that utilize the Andrews Forest for education-related activities. This discussion is restricted to the three principal partners: Oregon State University, the US Forest Service Pacific Northwest Research Station, and the Willamette National Forest. All three are party to the Memoranda of Understanding by which the Andrews Forest research and education program is organized. And, all three are partners in the Cascade Center for Ecosystem Management (CCEM), a program of research, demonstration and education that targets land managers and the general public and utilizes the Andrews Forest for much of the education program.

The success of the Andrews Forest education program has been due to the interests held in common among the three parties. In the past, there has been little formal structure to the program, and while it remained relatively small its success was attributable to
individuals from all three institutions working together. That loose organization is simply inappropriate and inefficient for a large and diverse program, more coordination will be necessary. In addition, more institutional support will also be needed from all partners.

Through the office of the Education Coordinator, OSU should be the lead party in many if not most of the educational activities. This does not mean that the other partners are not significant contributors of ideas and instructors, or might often take leads on some activities, but that the program should be coordinated out of the office of the Education Coordinator. Of the priority education areas listed on page 14, it seems appropriate for OSU to assume leadership for most of those areas.

There will be times when the other partners are asked to organize field trips or other education/information events. An example would be field trips for policy makers and elected officials who have contacted the US Forest Service directly. Another might be open house, public education opportunities provided by the Willamette National Forest. Within-agency training sessions and information exchanges of many kinds could also be well outside OSU’s responsibilities as well. Most cases of responsibility for leadership are viewed as probably being very clear.

It is expected that all partners will openly contribute ideas, concepts, and instructors for the various activities as is appropriate. The current spirit of mutual support and cooperation is an important one to maintain, and all partners should be fully aware of the current and planned educational activities of the others.

The educational offerings associated with the Andrews Forest should always be viewed as neutral venues for open discussion and debate among participants and free from any form of censorship.
List of Action Items

(with timelines, responsibilities in parentheses)

[ ] Establish an Education Committee (October 2001)

[ ] Education Committee undertakes tasks (begin Fall 2001, meet semiannually)
  [ ] Compile information on existing programs
  [ ] Develop visions for future
  [ ] Refine objectives and targets for program
  [ ] Revisit issue of an Education Coordinator (Dec 2001).
      [ ] If establish position, find funding and hire Education Coordinator.
  [ ] Compile list of funding sources for education activities.
      [ ] Submit proposals.
  [ ] Conduct a simple market analysis (second half of 2002).
  [ ] Develop program for promoting use/marketing.
      [ ] Target groups, agencies, NGOs to solicit use (e.g. Dept retreats,
ODFW, Ducks Unlimited, Greater Eugene Coalition of Power Quilters)

[ ] Work with Schoolyard LTER and SMILE teachers to develop simple K-12
teacher enhancement/training courses (on-going, McKee).

[ ] Continue/expand solicitation of use by other colleges/universities.
Appendix A: Seasonal Targets for Bed Occupancy at the Headquarters Site and Day Use Percentages for the H.J Andrews Experimental Forest.

Repeated discussions of facilities use at the Andrews Forest have emphasized the desirability of developing targets for 1) bed allocations and 2) day-use proportions for the Headquarters (HQ) facilities. These targets are intended to both clarify the priority of use of limited facilities and provide goals for use of the HQ site at different times of the year.

Both the bed occupancy and day use targets are subject to annual revision based on experience and changing emphases. Decisions regarding target allocations are determined by consensus among the users, and the venue for discussion will be Andrews Forest and Cascade Center Monthly meetings, usually held at Oregon State University on the first Friday of every month.

This plan summarizes discussions held in the Fall of 2000 and Spring of 2001 at the Andrews-Cascade Center monthly meetings. The targets for 2000 were acknowledged to not have been met, but were felt to be appropriate targets for 2001. These targets are shown below in Figures 1 and 2. Note the difference in the ordinate scales (beds is number and day use is %).

The beds held in the different categories of use (for example the 20 beds targeted for education use for June) will be released for other uses if not reserved six weeks prior to the week of use. Reservations will be accepted and made on a first-come, first-serve basis. Beds that become freed up will be assigned according to the order of the received requests – a first-come, first-served basis.

The day-use targets are intended to guide promotion of use of the facilities. They should not be viewed as hard and fast (in contrast to the bed occupancy), but rather serve as a guide for what is considered an appropriate as well as desired mix of uses of the HQ facilities.

![TARGET BED OCCUPANCY](image)

Figure 1. Target bed occupancies for the months of the year. The numbers are broken down into three categories of use occurring on or near the Andrews Forest and directly related to the Andrews Forest programs:
research (people involved with research projects); education (people engaged in formal or informal educational activities); and miscellaneous (people engaged in activities other than research or education such as staff meetings, safety programs, etc.)

Figure 2. Target day use percentages for the months of the year. The percentages are broken down into three categories of use occurring on or near the Andrews Forest: research (people involved with research projects); education (people engaged in formal or informal educational activities); and miscellaneous (people engaged in activities other than research or education such as staff meetings, safety programs, etc.)