GRADUATE EDUCATION: CONFLICTS AND CONTROVERSIES

The Pinchot Institute’s study on forestry education was designed to study “professional forestry education,” including both undergraduate degrees in forestry as well as graduate degrees. Of the employers interviewed, however, 70% of the forestry school graduates that they had hired within the last five years had only a bachelor’s degree. The employers’ responses, therefore, are more a reflection of undergraduate education than of graduate education.

In the course of this study, however, the Institute had the opportunity to gain insight into employers’ perceptions about graduate study as well as information about available graduate programs. This knowledge was gained through interviews with employers and academics, communications with program heads, and discussions at a symposium on forestry education held in Washington, DC, in March of 1999. The challenges facing graduate programs, and the issues surrounding graduate forestry education, are considerably different than those of undergraduate education.

Graduate Education: A Need or a Luxury?

There is general agreement within the forestry profession that a graduate degree is necessary if the student wants to conduct specialized forestry research or enter academia. There is considerable debate, however, about whether a graduate degree is necessary for management positions in industry, government, or other organizations. The debate centers on questions related to how the profession defines a “forestry professional” and whether one is considering short-term vs. long-term success.

Those employers and academics that believe a graduate degree is necessary often stress that there is increasing complexity in the forestry profession, and a four-year degree cannot cover all of the skills necessary to be a professional forester. Scott Wallinger, Senior Vice President of Westvaco, has asked, “The legal profession requires seven years of education, medicine requires eight, and MBAs require six. Why does forestry think it can do it in four?” Other employers have indicated that a graduate degree is certainly not necessary in gaining employment following college, but may become more essential as a forester’s career progresses. Charlie Bingham, a retired Vice President of Weyerhaeuser, noted, “A graduate degree is not necessary in today’s market, but the leadership is going to come from people who have graduate degrees because of those skills learned in graduate school.”

Several employers and educators have remarked that the market will determine the need for graduate education. John Helms, former Dean of the School of Forestry at the University of California at Berkeley, remarked, “The situation could be largely resolved in the market place if employers provided significantly higher salaries for holders of MF degrees. Because they currently do not, it seems to me that the market has indicated that a graduate degree is not necessary.” Some companies, however, are willing to back up their expectations. Westvaco, according to Wallinger, strongly encourages their promising
bachelor degree-holding employees to pursue graduate degrees, even offering financial compensation for tuition.

The role of continuing education must be considered as well, either in addition to graduate education or as an alternative. As the Pinchot Institute survey of employers suggests, it is expected that many of the highly rated competencies be delivered through continuing education. Furthermore, several employers made the case that practical, on-the-job experience is the best education. Nevertheless, the debate over the role of graduate education has been central to the profession and warrants further examination.

But What Kind of Graduate Degree?

Even among those employers and educators who consider a graduate degree necessary for professional forestry, there is debate about what that degree should be. Of course, the answer depends on the type of employment desired. A career in forest management or policy might require further broad training in forestry, as might be gained with a Master of Forestry (MF). Specialized research in a particular area of forestry, such as silviculture or watershed management, would necessitate a Master of Science (MS) degree. A forester with an undergraduate degree in forestry who is considering a career in industrial forestry, consulting, or timberland investment might opt to seek graduate education outside the direct realm of forestry and pursue a Master of Business Administration (MBA).

Of the 55 programs that were examined in the Pinchot Institute study, 48 offer graduate degree programs in forestry. That education varies both in scope and by degree. Graduate education in forestry generally falls into two categories: professional education or research. Almost every school that offers graduate education offers a Master of Science (MS), traditionally a research-focused degree. Only twenty schools offer a Master of Forestry (MF) or similar degree (such as Master of Forest Resources or Master of Professional Studies) that is geared towards professional training. In the majority of cases, the professional degree is designed for students who received an undergraduate degree in a field other than forestry. The Society of American Foresters (SAF) accredits six MF programs, all of which are designed to be “First Professional Degrees” (FPDs).

These statistics raise several questions. If most professional forestry degrees are designed for students without a previous forestry degree, then what is available for students who received an undergraduate degree in forestry and want to go on to gain a professional forestry degree? Are MS degree programs offering something for foresters who want who want to pursue professional careers outside of research?

Responding to Graduate Needs

There are several schools that offer both an MF (or equivalent) degree and an MS degree. Many schools noted, however, that their MF program has struggled during the last decade. Alan Ek, Head of the Department of Forest Resources at the University of
Minnesota, indicated that there have been only 7 or 8 students opting for the MF program during the last ten years. During that same period, 60-70 students have completed the MS program. Dr. Ek suggested that the MF has fallen out of favor lately, as students have recognized that it is less marketable and less recognizable than the MS degree. Richard Skok, Professor Emeritus at the University of Minnesota, added that there is often more funding available for MS students than for MF students.

The University of Michigan’s School of Natural Resources and Environment has witnessed a similar trend. According to the School’s SAF Accreditation Self-Evaluation Report, during the past 12 years, 122 students in forest-resource related programs earned the MS degree, whereas only 9 earned the MF degree (SNRE, 1998). The report noted that most of the School’s graduate students perceive the MF degree to represent a field of training too broad to meet their professional interests, and would prefer to specialize in one area of forestry. In response, the School eliminated its MF program and sought SAF accreditation for its MS degree in Terrestrial Ecosystems, with an emphasis in forestry, which was recently approved.

One of the major criticisms raised against the “necessity” for forestry education is that the time and money invested in graduate education is not universally rewarded. Most undergraduate forestry programs claim that students are not having trouble finding jobs in forestry upon graduation. Students therefore have difficulty justifying another two years of school to gain a graduate degree. The University of Georgia’s School of Forest Resources has proposed a compromise to that dilemma, according to Dean Arnett Mace. A recent proposal recognizes that “the demands now placed on forest resource professionals have increased to the point where many positions require proficiencies that cannot be acquired in the time permitted for a bachelor’s degree. As a result, the master’s degree has become a necessary qualification for certain positions.” Pending final approval, the School will offer a joint degree program between the BS in Forest Resources and the Master of Forest Resources. The joint program will enable students to receive both a bachelor’s degree and a master’s degree in five years, as opposed to six.

The results of the Pinchot Institute’s survey of employers suggests that many of the skills employers consider important, particularly management and problem-solving skills, should be gained through graduate education or continuing education. Many foresters are not opting for graduate education, however, because of the perceived lack of necessity or the lack of reward for advanced training. When students do pursue graduate education, it is usually through MS programs, which traditionally focus on specialized research as opposed to problem solving and management skills. Unless or until the profession promotes graduate professional education that provides those necessary skills, forestry schools need to make an effort to better integrate such competencies into undergraduate programs.
FACILITATING THE EVOLUTION IN FORESTRY EDUCATION

As part of this study, the Pinchot Institute for Conservation convened a symposium entitled “Facilitating the Evolution in Forestry Education,” in Washington, DC, in March, 1999. The objectives were to: 1) achieve a broader understanding of factors influencing forestry education in the United States, and 2) identify specific actions that can be taken by both forestry educators and employers to assist educational institutions in addressing the challenges of sustainable forest management. Participants included top leaders from forest industry, government non-profit conservation organizations, and forestry schools.

Forestry employers from several sectors offered their perspectives on the results of the study and described their current and future expectations of forestry graduates. Phil Janik, Chief Operating Officer of the USDA Forest Service, emphasized that foresters increasingly are called upon to adopt a big picture approach to forest management, in order to comprehend concepts such as sustainability and watershed integrity. Richard Donovan, Director of SmartWood, noted that an understanding of the role of forests in communities, businesses, and the environment is crucial for today’s foresters. There was general consensus among the employers that, in addition to a foundation in technical skills, new hires must have strong interpersonal and communication skills, vision and creativity, and the capacity for collaboration. Several employers, including Janik and Scott Wallinger, Senior Vice President of Westvaco, stressed that their organizations are increasingly looking to hire foresters with graduate degrees.

Innovative university approaches

Al Vogt, President of the National Association of Professional Forestry Schools and Colleges (NAPFSC), highlighted the recommendations that emerged from the 1991 Denver Symposium, “Forest Resource Management in the 21st Century: Will Forestry Education Meet the Challenge?” He noted that the symposium provided impetus for many of the changes that have occurred in forestry education in the 1990s.

Representatives from a number of forestry programs presented a glimpse of the developments taking place at their universities. An overriding theme was the increasing emphasis on outcomes, instead of inputs. Winifred Kessler, Chair of Forestry at the University of Northern British Columbia (UNBC), shared her experience of starting a forestry program from scratch. In developing their new program, the faculty decided that they would create courses that could accommodate a mix of disciplines. Kessler noted, “What really mattered, in our view, was not the amount of exposure the students had to certain topics. The important thing is what the students come away with – the competencies developed – as a result of having completed certain courses or experiences.” The School of Natural Resources at the University of Vermont (UVM) recently underwent a similar evolution, according to Associate Dean Don DeHayes. In the course of revising the curriculum, the faculty identified and developed inputs, process, and outputs, allowing the desired outputs to drive the planning.
Forestry programs have also directed significant attention recently towards integration. During its initial years in the 1970s, the School of Natural Resources at UVM was fragmented into different departments, including forestry, fisheries, etc. DeHayes noted that the attempts at integration during the 1980s involved encouraging students to take courses from multiple departments, but the students were expected to build the bridges themselves. The recent curriculum revision, however, took a different approach, and the outcome was a single core curriculum for all of the majors within the School of Natural Resources. Similarly, the faculty of the School of Forestry at Northern Arizona University (NAU) have made integration a key goal of their curriculum development, emphasizing collaborative learning, team teaching, and capstone courses that bring together students from multiple disciplines. Oregon State University has responded to the increasing demand for integration by adding two new programs, one in Natural Resources at the baccalaureate level and one in Sustainable Forestry and Agroforestry at the master’s level.

Several educators highlighted the challenge of striking a balance between training students in technical skills and educating them in areas such as communications and the liberal arts. Mike Wagner of the School of Forestry at NAU commented that the emphasis at NAU has been on education instead of technical training, noting that “it is easier to technically train an educated person than it is to educate a technically trained person.” Kim Steiner of the School of Forest Resources at Pennsylvania State University echoed that sentiment, noting that forestry educators have increasingly recognized that their role is not just to prepare students for their first job, but also to provide them with the skills for a successful career. He encouraged educators to consider the possibility that “we are overeducating students in the technical areas and undereducating them in career skills.” Kessler emphasized that the qualities of the “target graduate” at UNBC reached beyond technical forestry competencies to include concepts like ethics and citizenship. Participants also discussed the division that exists between forestry education and general education. One educator observed that forestry faculty often express frustration at the amount of time students must spend meeting their university’s general education requirements, and fail to recognize the value of general education.

**Collaborative opportunities for employers and educators**

Ross Whaley, President of the State University of New York College of Environmental Science and Forestry, remarked that the inadequacy of forestry education in meeting employer needs has become a constant criticism. He issued a challenge to the employers to shoulder some of the burden of educating foresters. Several participating employers agreed, and offered suggestions for collaborative opportunities.

The opportunities for employers are immense, suggested Scott Wallinger of Westvaco. He noted that “a progressive employer has a major challenge to pick up where the forestry schools leave off and turn the raw material into polished, professional forest resource managers.” Fred White of the Forestland Group noted that employers “must help the
educators produce that complex person who will be of most benefit to us as individual organizations.” He listed several opportunities for employer participation, including:

- offering internships,
- encouraging continuing education,
- providing graduate program assistance,
- mentoring new hires,
- facilitating in-house employee training,
- developing interactive education.

Barbara Weber, of the USDA Forest Service, suggested that employers are expecting increasingly more of graduates, particularly in understanding the challenges of meeting public needs. She called for better communication and stronger relationships between employers and universities, in order to facilitate a better understanding of each other’s needs.

**Synthesis**

Ross Whaley concluded by identifying several issues that deserve institutional attention, as opposed to individual campus attention. One is accountability and outcome assessment. He noted that government intrusion in higher education can be cumbersome, but it is not unreasonable for taxpayers to demand accountability from higher education. Many states are taking this issue quite seriously, and educators should examine the implications for forestry education. A second issue is individual responsibility for education. Whaley stressed that we cannot put all the responsibility on the educators and the employers, and questioned whether educators are doing a good job of teaching individual responsibility. He suggested that a third focal issue is continuing education, stating that “continuing education is going to be provided by almost everybody except the academic institutions unless we are attendant to it.” Whaley criticized universities for running continuing education like they run research projects, instead of examining client needs and developing continuing education that meets those needs. Finally, he issued several challenges to the Society of American Foresters (SAF) Task Force on Accreditation. Whaley stressed that the profession needs to consider how to reconcile the dichotomy between skills (like silviculture) and qualities (like citizenship), as well as the division between general education and forestry education.

The symposium provided a valuable opportunity for bolstering communication between forestry employers and forestry educators, and for discovering future opportunities for collaboration. Representatives of forestry employer organizations came away with a much better understanding of the political and financial environment in which the forestry schools are operating these days, and a better sense of how some universities are breaking out of past rigidities in structure and curriculum.

The forestry deans and department heads also came away with a clearer sense of what employers, both traditional and non-traditional, are seeking from emerging professionals. Participants were exposed to the growing need for forestry professionals to comprehend a broad array of specialities, including independent evaluation processes, financial planning, and community development. The skills desired of forestry professionals and the challenges
they are facing are continuing to grow. There is clearly still a need for the “core” forestry competencies to be taught, but there is a strong need to build upon them with life-long career skills.

The symposium produced an array of ideas for improved cooperation between forestry schools and forestry employers in meeting the changing needs of the practice of forestry. Forestry employers can contribute significantly to assisting the forestry schools by helping recruit high-aptitude students to forestry programs, providing targeted scholarship support and paid internships, and developing cooperative education programs that provide prospects for post-graduate career employment. These and similar efforts will help the schools evolve more quickly and to reflect changing social values toward forests and forestry as well as improvements in the natural and social science that underpins sustainable forest management.
CONCLUSION

Professional forestry practice today has become more challenging in virtually every aspect, from technical research to management planning. Moreover, society’s expectations for the protection and sustainable management of forest ecosystems, and their level of involvement in resource management decision making, continue to grow. As a result, adequately educating future foresters to meet these challenges is an increasingly difficult task. Significant gaps exist between what both forestry employers and recent forestry graduates regard as highly important to their success, and what forestry education programs at U.S. colleges and universities are currently providing. Forestry educators are hard-pressed to address these gaps in light of external financial and political pressures on higher education.

In the face of these challenges, a number of schools have discovered creative ways of addressing this dilemma, heightening their ability to sense changes in the marketplace demand for professional forestry skills, and adapting internal organizational mechanisms to be more flexible and responsive to these changes. Many other schools are aware that changes are taking place around them, but are still trying to discover ways to be better attuned to their "markets," and to make processes such as curriculum review more responsive while maintaining rigorous academic standards.

While there are numerous opportunities for forestry education programs to become more sensitive and responsive to the changing market demand for professional forestry skills, there are also important opportunities for forestry employers to foster forestry schools’ abilities to meet their needs. Schools are recognizing that they can call upon the resources of forestry employers and others who have a vested interest in educating forestry professionals who are technically competent, and who also can succeed in the complex social, economic, and ecological environment in which forestry is practiced today.

Forestry schools often have difficulty maintaining programs with limited enrollment – even those schools that show promise for expanding in the future. Employers with an interest in forestry graduates with particular sets of skills (e.g., forest products, watershed analysis, or independent, third-party certification) can take a number of steps to help forestry schools meet their needs, such as:

- Helping to direct, or even recruit, talented students to forestry programs;
- Making grants or scholarships available to high-achieving students enrolled in forestry programs;
- Offering current students paid summer internships that provide field experience and an exposure to the broader aspects of professional forestry practice;
- Developing or participating in cooperative education programs to give promising students greater assurance of career opportunities upon graduation;
- Guest lecturing in university courses or offering sites for field visits.
A crucial step towards making those opportunities a reality is promoting interaction between employers and educators as a basis for timely feedback and response. Implementing advisory committees that include potential employers of graduates is an excellent conduit for communication between employers and educators. Information sharing and mutual reinforcement can foster forestry program’s efforts as they strive to discover their own means to better meet the needs of the forestry profession and society as a whole. The forestry profession should never be completely satisfied with the knowledge and skills that are being imparted to future professionals, but should instead be constantly seeking opportunities to enhance forestry education and keep it responsive to changing needs.
LITERATURE CITED


USA Today. 1998. “A Study by the U.S. Commerce Department Says that Traffic on the Internet is Doubling Every 100 Days.” USA Today, April 16, 1998.

APPENDIX A
Seventh American Forest Congress
Visions and Principles
(adapted from http://www.yale.edu/forest_congress/summary)

Approximately 6,000 citizens participated in the Seventh American Forest Congress gathering in Washington, DC, in February 1996 and in 51 local roundtables and 43 collaborative meetings held in various parts of the country prior to the Washington meeting. In addition, approximately 500 individual contributions were submitted. The purpose of this Forest Congress was to discover the common ground shared by a majority of Americans with a deep interest in the future of the nation's forests. This summary presents a brief glimpse of the common ground shared by most who participated in the Forest Congress process between January 1995 and February 1996, expressed as a “vision” for the future of forests and forestry in America, and a set of principles by which this vision should be achieved.

The following is a listing of those vision elements and principles that were agreed to by 50% or more of those participating in the Forest Congress. Of the 13 vision elements that were developed at the Forest Congress, 12 received votes of agreement by 50% or more of participants. Of the 21 revised principles, 15 received votes of agreement by 50% or more of participants.

Vision Elements

In the tally of these vision elements, Forest Congress participants were instructed to “indicate your level of affirmation using the green, yellow, or red indication" defined as:

Green: Agreement, include as a vision element.
Yellow: Mixed feelings, but willing to accept as a vision element.
Red: Disagreement, do not include as a vision element.

In the future our forests . . .

1. ...will be held in a variety of public, private, tribal, land grant, and trust ownerships by owners whose rights, objectives, and expectations are respected and who understand and accept their responsibilities as stewards.

<table>
<thead>
<tr>
<th>Level of Agreement</th>
<th>Participants</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>910</td>
<td>90%</td>
</tr>
<tr>
<td>Yellow</td>
<td>66</td>
<td>7%</td>
</tr>
<tr>
<td>Red</td>
<td>31</td>
<td>3%</td>
</tr>
<tr>
<td>Total</td>
<td>1007</td>
<td>100%</td>
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</table>

Pinchot Institute for Conservation
2. ...will be enhanced by policies that encourage both public and private investment in long-term sustainable forest management.

<table>
<thead>
<tr>
<th>Level of Agreement</th>
<th>Participants</th>
<th>Percent</th>
</tr>
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<td>89%</td>
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<tr>
<td>Yellow</td>
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</tr>
<tr>
<td>Total</td>
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<td>100%</td>
</tr>
</tbody>
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3. ...will sustainably provide a range of goods, services, experiences, and values that contribute to community wellbeing, economic opportunity, social and personal satisfaction, spiritual and cultural fulfillment, and recreational enjoyment.

<table>
<thead>
<tr>
<th>Level of Agreement</th>
<th>Participants</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
<tr>
<td>Yellow</td>
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<td>Red</td>
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<tr>
<td>Total</td>
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<td>100%</td>
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</table>

4. ...will be maintained and enhanced across the landscape, expanding through reforestation and restoration where ecologically, economically, and culturally appropriate, in order to meet the needs of an expanding human population.

<table>
<thead>
<tr>
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<th>Participants</th>
<th>Percent</th>
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<td>Yellow</td>
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<td>Red</td>
<td>48</td>
<td>5%</td>
</tr>
<tr>
<td>Total</td>
<td>1009</td>
<td>100%</td>
</tr>
</tbody>
</table>

5. ...will be shaped by natural forces and by human actions that reflect the wisdom and values of an informed and engaged public, community and social concerns, sound scientific principles, local and indigenous knowledge, and the need to maintain options.

<table>
<thead>
<tr>
<th>Level of Agreement</th>
<th>Participants</th>
<th>Percent</th>
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<tbody>
<tr>
<td>Green</td>
<td>847</td>
<td>84%</td>
</tr>
<tr>
<td>Yellow</td>
<td>111</td>
<td>11%</td>
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<tr>
<td>Red</td>
<td>48</td>
<td>5%</td>
</tr>
<tr>
<td>Total</td>
<td>1006</td>
<td>100%</td>
</tr>
</tbody>
</table>
6. ...will be managed consistent with strategies and policies that foster forest integrity and maintain a broad range of ecological, economic, and social values and benefits.

<table>
<thead>
<tr>
<th>Level of Agreement</th>
<th>Participants</th>
<th>Percent</th>
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<tbody>
<tr>
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<td>14%</td>
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<td>7%</td>
</tr>
<tr>
<td>Total</td>
<td>1006</td>
<td>100%</td>
</tr>
</tbody>
</table>

7. ...will be sustainable, support biological diversity, maintain ecological and evolutionary processes, and be highly productive.

<table>
<thead>
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<th>Participants</th>
<th>Percent</th>
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</thead>
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<td>Yellow</td>
<td>185</td>
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</tr>
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<td>Total</td>
<td>1010</td>
<td>100%</td>
</tr>
</tbody>
</table>

8. ...will contribute to strong and vital rural and urban communities that benefit from, protect, and enhance the forests in their vicinity.

<table>
<thead>
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<th>Percent</th>
</tr>
</thead>
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<td>10%</td>
</tr>
<tr>
<td>Total</td>
<td>1009</td>
<td>100%</td>
</tr>
</tbody>
</table>

9. ...will be managed with consideration for the global implications of land stewardship.

<table>
<thead>
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<th>Participants</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
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<tr>
<td>Total</td>
<td>1005</td>
<td>100%</td>
</tr>
</tbody>
</table>
10. ...will maintain their essential role in protecting watersheds and aquatic systems.

<table>
<thead>
<tr>
<th>Level of Agreement</th>
<th>Participants</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
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<td>68%</td>
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<tr>
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<td>14%</td>
</tr>
<tr>
<td>Red</td>
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<td>18%</td>
</tr>
<tr>
<td>Total</td>
<td>1010</td>
<td>100%</td>
</tr>
</tbody>
</table>

11. ...will be acknowledged as vital by citizens who are knowledgeable and involved in stewardship and who appreciate the contribution of forests to the economic and environmental quality of life.

<table>
<thead>
<tr>
<th>Level of Agreement</th>
<th>Participants</th>
<th>Percent</th>
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<tr>
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<td>Total</td>
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<td>100%</td>
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</table>

12. ...will be managed on the basis of a stewardship ethic with respect, reverence, and humility.

<table>
<thead>
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<th>Level of Agreement</th>
<th>Participants</th>
<th>Percent</th>
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<td>54%</td>
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<td>Red</td>
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<tr>
<td>Total</td>
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**Revised Principles**

The Forest Congress participants were presented with 19 Draft Principles. Working groups were established to recraft the principles before a canvass on levels of agreement was taken of all the participants. Two of the 19 principles were broken into two revised principles, creating a total of 21. The 15 revised principles that received votes of agreement by 50% or more of participants are listed.

For each of the principles, the participants were instructed to: "Please indicate your agreement (green); your sense of un-ease or lack of information (yellow); or your disagreement (red); for each potential principle. Do this for each potential principle as a stand alone point, even if they overlap."

- **Green:** Agreement, include as a vision element.
- **Yellow:** Mixed feelings, but willing to accept as a vision element.
- **Red:** Disagreement, do not include as a vision element.
1. Ensure that open and continuous dialogue is maintained and encouraged among all parties interested in forests.

<table>
<thead>
<tr>
<th>Level of Agreement</th>
<th>Participants</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
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<td>7%</td>
</tr>
<tr>
<td>Red</td>
<td>50</td>
<td>5%</td>
</tr>
<tr>
<td>Total</td>
<td>1091</td>
<td>100%</td>
</tr>
</tbody>
</table>

2. Voluntary cooperation and coordination among individuals, landowners, communities, organizations, and governments is encouraged to achieve shared ecosystems goals.

<table>
<thead>
<tr>
<th>Level of Agreement</th>
<th>Participants</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>924</td>
<td>85%</td>
</tr>
<tr>
<td>Yellow</td>
<td>97</td>
<td>9%</td>
</tr>
<tr>
<td>Red</td>
<td>70</td>
<td>6%</td>
</tr>
<tr>
<td>Total</td>
<td>1091</td>
<td>100%</td>
</tr>
</tbody>
</table>

3. Cohesive and stable policies, programs, and incentives should be available to allow forest owners and managers to sustain and enhance forests.

<table>
<thead>
<tr>
<th>Level of Agreement</th>
<th>Participants</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>910</td>
<td>84%</td>
</tr>
<tr>
<td>Yellow</td>
<td>115</td>
<td>11%</td>
</tr>
<tr>
<td>Red</td>
<td>62</td>
<td>6%</td>
</tr>
<tr>
<td>Total</td>
<td>1087</td>
<td>100%</td>
</tr>
</tbody>
</table>
4. Science-based information is accessible and understandable, distributed in a timely manner, and contributes to forest policy and management.

<table>
<thead>
<tr>
<th>Level of Agreement</th>
<th>Participants</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>881</td>
<td>80%</td>
</tr>
<tr>
<td>Yellow</td>
<td>143</td>
<td>13%</td>
</tr>
<tr>
<td>Red</td>
<td>73</td>
<td>7%</td>
</tr>
<tr>
<td>Total</td>
<td>1097</td>
<td>100%</td>
</tr>
</tbody>
</table>

5. Comprehensive, integrated, and well-organized research is well funded. It is designed and conducted in collaboration with stakeholders to ensure for society the countless benefits of our forest ecosystems. Knowledge and technology products are effectively distributed, tested, and implemented.

<table>
<thead>
<tr>
<th>Level of Agreement</th>
<th>Participants</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>834</td>
<td>76%</td>
</tr>
<tr>
<td>Yellow</td>
<td>134</td>
<td>12%</td>
</tr>
<tr>
<td>Red</td>
<td>125</td>
<td>11%</td>
</tr>
<tr>
<td>Total</td>
<td>1093</td>
<td>100%</td>
</tr>
</tbody>
</table>

6. All differences in goals and objectives of public, private, and tribal forest owners are recognized and respected. Forest owners, including the general public, recognize and embrace both the rights and responsibilities of ownership. All forest owners acknowledge that public interests (e.g., air, water, fish, and wildlife) exist on private lands and private interests (e.g., timber sales and recreation) exist on public lands.

<table>
<thead>
<tr>
<th>Level of Agreement</th>
<th>Participants</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>809</td>
<td>75%</td>
</tr>
<tr>
<td>Yellow</td>
<td>166</td>
<td>15%</td>
</tr>
<tr>
<td>Red</td>
<td>110</td>
<td>10%</td>
</tr>
<tr>
<td>Total</td>
<td>1085</td>
<td>100%</td>
</tr>
</tbody>
</table>

7. Urban and community forest ecosystems will be valued, enhanced, expanded, and perpetuated.

<table>
<thead>
<tr>
<th>Level of Agreement</th>
<th>Participants</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>809</td>
<td>74%</td>
</tr>
<tr>
<td>Yellow</td>
<td>169</td>
<td>15%</td>
</tr>
<tr>
<td>Red</td>
<td>120</td>
<td>11%</td>
</tr>
<tr>
<td>Total</td>
<td>1098</td>
<td>100%</td>
</tr>
</tbody>
</table>
8. People's actions should ensure that the management of forests should sustain ecosystem structure, functions, and processes at the appropriate temporal and spatial levels.

<table>
<thead>
<tr>
<th>Level of Agreement</th>
<th>Participants</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>763</td>
<td>70%</td>
</tr>
<tr>
<td>Yellow</td>
<td>217</td>
<td>20%</td>
</tr>
<tr>
<td>Red</td>
<td>113</td>
<td>10%</td>
</tr>
<tr>
<td>Total</td>
<td>1093</td>
<td>100%</td>
</tr>
</tbody>
</table>

9. Forestry policy and management decisions must reflect the interdependence of diverse urban, suburban, and rural communities.

<table>
<thead>
<tr>
<th>Level of Agreement</th>
<th>Participants</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>755</td>
<td>69%</td>
</tr>
<tr>
<td>Yellow</td>
<td>183</td>
<td>17%</td>
</tr>
<tr>
<td>Red</td>
<td>153</td>
<td>14%</td>
</tr>
<tr>
<td>Total</td>
<td>1091</td>
<td>100%</td>
</tr>
</tbody>
</table>

10. Forests provide a broad range of social, environmental, cultural, and economic resources and benefits.

<table>
<thead>
<tr>
<th>Level of Agreement</th>
<th>Participants</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>725</td>
<td>67%</td>
</tr>
<tr>
<td>Yellow</td>
<td>215</td>
<td>20%</td>
</tr>
<tr>
<td>Red</td>
<td>146</td>
<td>13%</td>
</tr>
<tr>
<td>Total</td>
<td>1086</td>
<td>100%</td>
</tr>
</tbody>
</table>

11. Forests are a global resource that sustains the health of the planet and its inhabitants. Our forest stewardship must recognize the trends of global population; consequential supply and demand; and the potential for ecological, social, and economic impacts worldwide. We will actively seek to learn from the global community.

<table>
<thead>
<tr>
<th>Level of Agreement</th>
<th>Participants</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>708</td>
<td>65%</td>
</tr>
<tr>
<td>Yellow</td>
<td>182</td>
<td>17%</td>
</tr>
<tr>
<td>Red</td>
<td>194</td>
<td>18%</td>
</tr>
<tr>
<td>Total</td>
<td>1084</td>
<td>100%</td>
</tr>
</tbody>
</table>
12. All federal public lands should be maintained for present and future generations and managed in accordance with national laws. Changes in those laws should be pursued through an open legislative process that allows the airing of views by the public.

<table>
<thead>
<tr>
<th>Level of Agreement</th>
<th>Participants</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>704</td>
<td>65%</td>
</tr>
<tr>
<td>Yellow</td>
<td>171</td>
<td>16%</td>
</tr>
<tr>
<td>Red</td>
<td>216</td>
<td>20%</td>
</tr>
<tr>
<td>Total</td>
<td>1091</td>
<td>100%</td>
</tr>
</tbody>
</table>

13. People's actions should ensure factual information and education concerning forests be readily available, engaging, and actively disseminated to all.

<table>
<thead>
<tr>
<th>Level of Agreement</th>
<th>Participants</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>662</td>
<td>61%</td>
</tr>
<tr>
<td>Yellow</td>
<td>223</td>
<td>20%</td>
</tr>
<tr>
<td>Red</td>
<td>203</td>
<td>19%</td>
</tr>
<tr>
<td>Total</td>
<td>1088</td>
<td>100%</td>
</tr>
</tbody>
</table>

14. Land area covered by forests is maintained and potentially increased.

<table>
<thead>
<tr>
<th>Level of Agreement</th>
<th>Participants</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>581</td>
<td>53%</td>
</tr>
<tr>
<td>Yellow</td>
<td>270</td>
<td>25%</td>
</tr>
<tr>
<td>Red</td>
<td>238</td>
<td>22%</td>
</tr>
<tr>
<td>Total</td>
<td>1089</td>
<td>100%</td>
</tr>
</tbody>
</table>

15. Forestry decisions should take into account the concerns of an increasingly diverse US population, as well as the needs of the forests, while linking benefits and responsibilities within the communities.

<table>
<thead>
<tr>
<th>Level of Agreement</th>
<th>Participants</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>547</td>
<td>50%</td>
</tr>
<tr>
<td>Yellow</td>
<td>283</td>
<td>26%</td>
</tr>
<tr>
<td>Red</td>
<td>257</td>
<td>24%</td>
</tr>
<tr>
<td>Total</td>
<td>1087</td>
<td>100%</td>
</tr>
</tbody>
</table>
APPENDIX B
Forestry Education – Employer Questionnaire
(Conducted by telephone)

Part I:

1. Do you . . . 

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>N.A.</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Supervise forestry school graduates?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>b. Participate in hiring decisions?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>c. Participate in recruiting new forestry school graduates?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>d. Help select the forestry schools where you recruit?</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

(IF YES TO ANY, CONTINUE, IF NO TO ALL, CLOSE.)

2. About how many forestry school graduates did you hire during the past five years?

   ______
   IF ZERO, THANK AND CLOSE.

2a. How many of those were graduates with bachelor’s degrees? Master’s degrees? PhDs?

   Bachelor’s     Master’s     PhDs

3. Now, I’d like you to think about the skills that are most important for a forester’s long-term success in your organization. I’ll read a list of skills that a new forestry school graduate might have. As I read each one, please tell me how important it is for long-term success in your organization on a 10-point scale, where “1” means not very important and “10” means extremely important. (WRITE IN “DK” OR “REF” AS NECESSARY.)

<table>
<thead>
<tr>
<th></th>
<th>Rating</th>
<th>Score</th>
<th>Pts</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>A landscape-level understanding of forest ecosystems and how to manage them to meet ecological, economic, and social needs.</td>
<td>1-6=0</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>7=1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>8=2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>9=3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>10=4</td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>Understanding of the requirements of a healthy forest ecosystem, and the full variety of silvicultural and other tools available to manage that system sustainably.</td>
<td>1-6=0</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>7=1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>8=2</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>9=3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>10=4</td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>Innovation – that is, critical thinking and willingness to test new</td>
<td>1-6=0</td>
<td></td>
</tr>
</tbody>
</table>

Pinchot Institute for Conservation
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
</table>
| and non-traditional approaches to forest management. | 7=1  
|   | 8=2  
|   | 9=3  
|   | 10=4 |
| **d** Ability to work well in teams that include individuals with a variety of perspectives, both within and outside the organization. | 1=6=0  
|   | 7=1  
|   | 8=2  
|   | 9=3  
|   | 10=4 |
| **e** Ability to listen to and address public questions and concerns and to explain the principles of environmentally responsible forest management practices to the public. | 1=6=0  
|   | 7=1  
|   | 8=2  
|   | 9=3  
|   | 10=4 |
| **f** Ability to utilize innovative approaches to working with the public to address forest management problems. | 1=6=0  
|   | 7=1  
|   | 8=2  
|   | 9=3  
|   | 10=4 |
| **g** Ability to evaluate and synthesize input from a variety of specialists when developing resource management plans. | 1=6=0  
|   | 7=1  
|   | 8=2  
|   | 9=3  
|   | 10=4 |
| **TOTAL:** | IF < 14 PTS, ASK Q3A – 4B, THEN CLOSE  
|   | IF ≥ 14 PTS. ASK Q3A AND THEN SKIP TO Q5 |

3a. What other skills are important for a forester’s long-term success in your organization?

4. We are also conducting a survey of recent graduates of forestry schools in which we will ask them to describe and evaluate the education they received. Since recent graduates are often highly mobile, it is difficult for us to reach them. Will you help us by either allowing us to send you a packet of questionnaires that you would distribute to these recent hires or by giving me the names and office mailing address of new forestry school graduates your company has hired during the past three years so we can mail them a questionnaire?

<table>
<thead>
<tr>
<th>Yes</th>
<th>1</th>
<th>CONTINUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>2</td>
<td>THANK AND CLOSE</td>
</tr>
</tbody>
</table>
4a. Which would you prefer – to have us send you a packet of questionnaires or to give us the names?

Packet 1 CONTINUE
Names  2 COLLECT NAMES AND MAILING ADDRESSES. THANK AND CLOSE

4b. How many questionnaires may I send you? ____________ Number

Part II:

5. Which comes closest to your definition of a forester – a specialist in some area of forest management, such as silviculture or timber management OR a generalist who works with a team of specialists to manage the entire forest ecosystem?

   Specialist 1
   Generalist 2
   Both/depends: specify 3
   DK/NA 4

6. When you hire new forestry graduates, do you find that they sometimes have to discard or ignore some concepts that they learned in forestry school before they can be fully productive in your work environment?

   Yes 1 CONTINUE
   No 2 SKIP TO Q7
   DK/NA 3 SKIP TO Q7

6a. What concepts do they have to discard or ignore? PROBE FOR SPECIFIC TYPES OF:

   SCIENTIFIC THEORY

   NATURAL RESOURCE MANAGEMENT TECHNIQUES

   HUMAN RESOURCE MANAGEMENT TECHNIQUES

7. What new concepts – if any – have recent forestry graduates brought to your organization? PROBE FOR SPECIFIC TYPES OF:

   SCIENTIFIC THEORY (i.e., landscape ecology)

   NATURAL RESOURCE MANAGEMENT TECHNIQUES (i.e., GIS)

   HUMAN RESOURCE MANAGEMENT TECHNIQUES (i.e., alternative dispute resolution)
8. With which forestry schools – or other schools and colleges that confer forestry degrees – have you worked with most in recruiting or hiring foresters in the past 5 years? (ACCEPT UP TO THREE RESPONSES)

<table>
<thead>
<tr>
<th>School Name</th>
<th>Code</th>
<th>School Name</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alaska, University of Fairbanks</td>
<td>1</td>
<td>Mississippi State University</td>
<td>32</td>
</tr>
<tr>
<td>Arkansas, University of - Monticello</td>
<td>2</td>
<td>Montana, University of</td>
<td>33</td>
</tr>
<tr>
<td>Auburn University</td>
<td>3</td>
<td>Duke University</td>
<td>34</td>
</tr>
<tr>
<td>Arizona, University of</td>
<td>4</td>
<td>North Carolina State University</td>
<td>35</td>
</tr>
<tr>
<td>(Northern) Arizona University</td>
<td>5</td>
<td>North Dakota State University</td>
<td>36</td>
</tr>
<tr>
<td>California University of-Berkeley</td>
<td>6</td>
<td>Nebraska, University of</td>
<td>37</td>
</tr>
<tr>
<td>California Polytechnic State University</td>
<td>7</td>
<td>New Hampshire, University of</td>
<td>38</td>
</tr>
<tr>
<td>Clemson University</td>
<td>8</td>
<td>New Mexico State University</td>
<td>39</td>
</tr>
<tr>
<td>Colorado State University</td>
<td>9</td>
<td>Nevada, University of - Reno</td>
<td>40</td>
</tr>
<tr>
<td>Connecticut, University of</td>
<td>10</td>
<td>New York, State University of</td>
<td>41</td>
</tr>
<tr>
<td>Cornell University</td>
<td>11</td>
<td>Ohio State University</td>
<td>42</td>
</tr>
<tr>
<td>Florida, University of</td>
<td>12</td>
<td>Oklahoma State University</td>
<td>43</td>
</tr>
<tr>
<td>Georgia, University of</td>
<td>13</td>
<td>Oregon State University</td>
<td>44</td>
</tr>
<tr>
<td>Hawaii, University of</td>
<td>14</td>
<td>Purdue University</td>
<td>45</td>
</tr>
<tr>
<td>Humboldt State University</td>
<td>15</td>
<td>Rutgers- State University of New Jersey</td>
<td>46</td>
</tr>
<tr>
<td>Iowa State University</td>
<td>16</td>
<td>Pennsylvania State University</td>
<td>47</td>
</tr>
<tr>
<td>Idaho, University of</td>
<td>17</td>
<td>Puerto Rico, University of</td>
<td>48</td>
</tr>
<tr>
<td>Illinois, University of</td>
<td>18</td>
<td>South Dakota State University</td>
<td>49</td>
</tr>
<tr>
<td>(Southern) Illinois University</td>
<td>19</td>
<td>Tennessee, Univ. of-Knoxville</td>
<td>50</td>
</tr>
<tr>
<td>Kansas State University</td>
<td>20</td>
<td>Stephen F Austin State University</td>
<td>51</td>
</tr>
<tr>
<td>Kentucky, University of</td>
<td>21</td>
<td>Texas A&amp;M University</td>
<td>52</td>
</tr>
<tr>
<td>Louisiana Tech University</td>
<td>22</td>
<td>Utah State University</td>
<td>53</td>
</tr>
<tr>
<td>Louisiana State University</td>
<td>23</td>
<td>Virginia Polytechnic University</td>
<td>54</td>
</tr>
<tr>
<td>Massachusetts, University of</td>
<td>24</td>
<td>Vermont University of</td>
<td>55</td>
</tr>
<tr>
<td>Maryland, University of</td>
<td>25</td>
<td>Washington, University of</td>
<td>56</td>
</tr>
<tr>
<td>Maine, University of - Orono</td>
<td>26</td>
<td>Washington State University</td>
<td>57</td>
</tr>
<tr>
<td>Michigan, University of</td>
<td>27</td>
<td>Wisconsin, University of-Madison</td>
<td>58</td>
</tr>
<tr>
<td>Michigan State University</td>
<td>28</td>
<td>Wisconsin, Univ of -Stevens Point</td>
<td>59</td>
</tr>
<tr>
<td>Michigan Tech University</td>
<td>29</td>
<td>West Virginia University</td>
<td>60</td>
</tr>
<tr>
<td>Minnesota, University of</td>
<td>30</td>
<td>Wyoming, University of</td>
<td>61</td>
</tr>
<tr>
<td>Missouri, University of</td>
<td>31</td>
<td>Yale University</td>
<td>62</td>
</tr>
<tr>
<td>Other*</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Do not include if the program does not grant a four-year degree or higher.
9. Now, I would like you to rate each of these schools – based on your experience with their graduates during the past five years – on a number of attributes using a scale of 1 to 10, where "1" means poor and "10" means excellent. How would you rate (FIRST SCHOOL) on (FIRST ATTRIBUTE)? How would you rate (SECOND SCHOOL)? (THIRD SCHOOL)? (WRITE IN "DK" OR "REF" AS NECESSARY.) (IF UNABLE TO RATE SCHOOLS, ASK FOR REFERRAL AND SKIP TO Q10 AND ASK Q10 AND Q10B, THEN SKIP TO Q12. CONDUCT COMPLETE INTERVIEW(S) WITH PERSON FOR PERSONS YOU ARE REFERRED TO.)

1st School

2nd School

3rd School

<table>
<thead>
<tr>
<th>(READ LIST Rotating Attributes)</th>
<th>1st</th>
<th>2nd</th>
<th>3rd</th>
</tr>
</thead>
<tbody>
<tr>
<td>a A landscape-level understanding of forest ecosystems and how to manage them to meet ecological, economic, and social needs.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b Understanding of the requirements of a healthy forest ecosystem, and the full variety of silvicultural and other tools available to manage that system sustainably.</td>
<td></td>
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<tr>
<td>c Innovation – that is, critical thinking and willingness to test new and non-traditional approaches to forest management.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d Ability to work well in teams that include individuals with a variety of perspectives, both within and outside the organization.</td>
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<tr>
<td>e Ability to listen to and address public questions and concerns and to explain the principles of environmentally responsible forest management practices to the public.</td>
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<tr>
<td>f Ability to utilize innovative approaches to working with the public to address forest management problems.</td>
<td></td>
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<tr>
<td>g Ability to evaluate and synthesize input from a variety of specialists when developing resource management plans.</td>
<td></td>
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</tr>
</tbody>
</table>
10. Now, I'll read a list of technical competencies. As I read each one, please tell me how important it is to the long-term success of foresters in your organization on a 10-point scale, where “1” means not very important and “10” means extremely important. (READ LIST ROTATING ATTRIBUTES) (IF UNABLE TO RATE SCHOOLS, ASK FOR REFERRAL AND SKIP TO Q10B, THEN SKIP TO Q12. CONDUCT COMPLETE INTERVIEW(S) WITH PERSON FOR PERSONS YOU ARE REFERRED TO.)

10a. (FOR EACH RATED “7” OR MORE) (Based on your experience with the schools and their graduates during the past five years) How would you rate (FIRST SCHOOL) on (ATTRIBUTE)? How would you rate (SECOND SCHOOL)? (THIRD SCHOOL)?

10b. (FOR EACH RATED “7” FOR MORE) At what level would you expect employees to gain that competency – through their undergraduate education, their graduate education or through continuing education?

<table>
<thead>
<tr>
<th>(READ LIST ROTATING ATTRIBUTES) (WRITE IN “DK” OR “REF” AS NECESSARY)</th>
<th>Q10</th>
<th>Q10a</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1&lt;sup&gt;st&lt;/sup&gt;</td>
<td>2&lt;sup&gt;nd&lt;/sup&gt;</td>
</tr>
<tr>
<td>a</td>
<td>Forest ecology</td>
<td>1</td>
</tr>
<tr>
<td>b</td>
<td>Forest soils</td>
<td>1</td>
</tr>
<tr>
<td>c</td>
<td>Tree and plant species identification</td>
<td>1</td>
</tr>
<tr>
<td>d</td>
<td>Forest pathology</td>
<td>1</td>
</tr>
<tr>
<td>e</td>
<td>Fire dynamics in forest ecosystems</td>
<td>1</td>
</tr>
<tr>
<td>f</td>
<td>Conservation biology</td>
<td>1</td>
</tr>
<tr>
<td>g</td>
<td>Wildlife biology</td>
<td>1</td>
</tr>
<tr>
<td>h</td>
<td>Forest inventory and biometry</td>
<td>1</td>
</tr>
<tr>
<td>i</td>
<td>Forest engineering and transportation systems</td>
<td>1</td>
</tr>
<tr>
<td>j</td>
<td>Silvicultural systems</td>
<td>1</td>
</tr>
<tr>
<td>k</td>
<td>Landscape analysis and geographic information systems</td>
<td>1</td>
</tr>
<tr>
<td>l</td>
<td>Resource economics</td>
<td>1</td>
</tr>
<tr>
<td>m</td>
<td>Rural community development</td>
<td>1</td>
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<tr>
<td>n</td>
<td>Wildland/protected areas mgmt</td>
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<td>o</td>
<td>Watershed management</td>
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<td>p</td>
<td>Range management</td>
<td></td>
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<tr>
<td>q</td>
<td>Resource policy and law</td>
<td></td>
</tr>
<tr>
<td>r</td>
<td>Resource management planning</td>
<td></td>
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<tr>
<td>s</td>
<td>Alternative dispute resolution</td>
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<td>t</td>
<td>Managerial leadership</td>
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<tr>
<td>u</td>
<td>Organizational development</td>
<td></td>
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<tr>
<td>v</td>
<td>Human resource management</td>
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<tr>
<td>w</td>
<td>Government relations</td>
<td></td>
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<tr>
<td>x</td>
<td>Financial management</td>
<td></td>
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<tr>
<td>y</td>
<td>Collaborative problem solving</td>
<td></td>
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<tr>
<td>z</td>
<td>Oral communication skills</td>
<td></td>
</tr>
<tr>
<td>aa</td>
<td>Written communication skills</td>
<td></td>
</tr>
<tr>
<td>bb</td>
<td>Foreign language</td>
<td></td>
</tr>
<tr>
<td>cc</td>
<td>Ethics</td>
<td></td>
</tr>
</tbody>
</table>

11. Again using a scale of 1 to 10, where "1" means poor and "10" means excellent, how would you rate the overall performance of the graduates you have recruited or hired during the past five years from (FIRST SCHOOL)? (SECOND SCHOOL)? (THIRD SCHOOL)?

11a. (AFTER EACH RATING ASK) Why do you feel that way?

<table>
<thead>
<tr>
<th>Q11 Rating</th>
<th>Q11a Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td></td>
</tr>
<tr>
<td>2nd</td>
<td></td>
</tr>
<tr>
<td>3rd</td>
<td></td>
</tr>
</tbody>
</table>
11b. (ASK ONLY TO BREAK A TIE FOR 1ST PLACE) Which school do you prefer to recruit or hire from?

11c. Which school does your organization recruit from most often?

11d. (IF THE RESPONSES TO Q11b AND Q11c ARE DIFFERENT, ASK WHY)

12. (ASK EVERYONE) We are also conducting a survey of recent graduates of forestry schools in which we will ask them to describe and evaluate the education they received. Since recent graduates are often highly mobile, it is difficult for us to reach them. Will you help us by either by allowing us to send you a packet of questionnaires that you would distribute to these recent hires or giving me the names and office mailing address of new forestry school graduates your company has hired during the past three years so we can mail them a questionnaire?

Yes 1 CONTINUE
No 2 THANK AND CLOSE

12a. Which would you prefer – to have us send you a packet of questionnaires or to give us the names?

Packet 1 CONTINUE
Names 2 COLLECT NAMES AND MAILING ADDRESSES AND IF POSSIBLE, TELEPHONE NUMBERS, OR ARRANGE TO DO SO. THANK AND CLOSE

12b. How many questionnaires may I send you? ___________ Number

THANK AND CLOSE
APPENDIX C
Forestry Education – Recent Graduate Survey
(Conducted by Mail)

1. Please tell us about your **most recent** forestry degree. *If you have been awarded more than one forestry degree during the past five years, answer the questions on the white questionnaire in terms of your most recent degree and use the blue questionnaire for your next most recent degree.*

<table>
<thead>
<tr>
<th>Your Degree(s)</th>
<th>Year of Graduation</th>
<th>College or University</th>
<th>Field/Major</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-year degree</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelor's degree</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Master's degree</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ph.D.</td>
<td>4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2. Which of the following best describes the goal of the forestry school you attended?

   - To prepare foresters to work in specialized areas of forest management  
   - To prepare foresters to be forest management generalists

3. Please rate your forestry school’s performance in helping you acquire the following general skills using a 10-point scale, where “1” means poor and “10” means outstanding.

<table>
<thead>
<tr>
<th>Skill</th>
<th>1-Poor</th>
<th>10-Outstanding</th>
</tr>
</thead>
<tbody>
<tr>
<td>A landscape-level understanding of forest ecosystems and how to manage them to meet ecological, economic, and social needs.</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>Understanding of the requirements of a healthy forest ecosystem, and the full variety of silvicultural and other tools available to manage that system sustainably.</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>Innovation - that is, critical thinking and willingness to test new and non-traditional approaches to forest management.</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>Ability to work well in teams that include individuals with a variety of perspectives, both within and outside the organization.</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>Ability to listen and address public questions and concerns and to explain the principles of environmentally responsible forest management practices to the public.</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>Ability to utilize innovative approaches to working with the public to address forest management problems.</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
<tr>
<td>Ability to evaluate and synthesize input from a variety of specialists when developing resource management plans.</td>
<td>1 2 3 4 5 6 7 8 9 10</td>
<td></td>
</tr>
</tbody>
</table>

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4. For each of the competencies listed below, please answer the following questions.

4a. Was any specific education in this competency available through either courses taught at the forestry school, or through other departments in the university?

4b. Check ✔ the competencies required for your degree program.

4c. For each not required. Check ✔ the competencies for which your forestry school encouraged you to get education within the university.

<table>
<thead>
<tr>
<th>Competency</th>
<th>Q4a Available Through</th>
<th>Q4b If Required</th>
<th>Q4c If Encouraged</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forest ecology</td>
<td>①</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Forest soils</td>
<td>①</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Tree/plant species identification</td>
<td>①</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Forest pathology</td>
<td>①</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Fire dynamics in forest ecosystems</td>
<td>①</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Conservation biology</td>
<td>①</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Wildlife biology</td>
<td>①</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Forest inventory and biometry</td>
<td>②</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Forest engineering/transportation systems</td>
<td>②</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Silvicultural systems</td>
<td>②</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Landscape analysis/geographic information systems</td>
<td>②</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Resource economics</td>
<td>②</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>Rural community development</td>
<td>②</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>Wildland/protected areas management</td>
<td>②</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>Watershed management</td>
<td>②</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Range management</td>
<td>②</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Resource policy and law</td>
<td>②</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>Resource management planning</td>
<td>②</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>Alternative dispute resolution</td>
<td>②</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>Managerial leadership</td>
<td>②</td>
<td>☐</td>
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<tr>
<td>Organizational development</td>
<td>②</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>Human resource management</td>
<td>②</td>
<td>☐</td>
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<tr>
<td>Government relations</td>
<td>②</td>
<td>☐</td>
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<tr>
<td>Financial management</td>
<td>②</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>Collaborative problem solving</td>
<td>②</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>Oral communication skills</td>
<td>②</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>Written communication skills</td>
<td>②</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>Foreign language</td>
<td>②</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Ethics</td>
<td>②</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
5. Please check ✔ the competencies for which you received education within your forestry school, then check ✔ those for which you received education through another department in the university.

5a. Then, rate the education you received – both within your forestry school and through other departments in the university – on a 10-point scale where “1” means poor and “10” means outstanding.

<table>
<thead>
<tr>
<th>Q5. ✔ Received education</th>
<th>Q5a</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Forestry School</td>
<td>Other Department</td>
</tr>
<tr>
<td>Forest ecology</td>
<td>1</td>
</tr>
<tr>
<td>Forest soils</td>
<td>1</td>
</tr>
<tr>
<td>Tree/plant species identification</td>
<td>1</td>
</tr>
<tr>
<td>Forest pathology</td>
<td>1</td>
</tr>
<tr>
<td>Fire dynamics in forest ecosystems</td>
<td>1</td>
</tr>
<tr>
<td>Conservation biology</td>
<td>1</td>
</tr>
<tr>
<td>Wildlife biology</td>
<td>1</td>
</tr>
<tr>
<td>Forest inventory and biometry</td>
<td>1</td>
</tr>
<tr>
<td>Forest engineering/transportation systems</td>
<td>1</td>
</tr>
<tr>
<td>Silvicultural systems</td>
<td>1</td>
</tr>
<tr>
<td>Landscape analysis/geographic information systems</td>
<td>1</td>
</tr>
<tr>
<td>Resource economics</td>
<td>1</td>
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<tr>
<td>Rural community development</td>
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<tr>
<td>Wildland/protected areas management</td>
<td>1</td>
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<tr>
<td>Watershed management</td>
<td>1</td>
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<tr>
<td>Range management</td>
<td>1</td>
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<tr>
<td>Resource policy and law</td>
<td>1</td>
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<td>Resource management planning</td>
<td>1</td>
</tr>
<tr>
<td>Alternative dispute resolution</td>
<td>1</td>
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<tr>
<td>Managerial leadership</td>
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<td>Organizational development</td>
<td>1</td>
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<tr>
<td>Human resource management</td>
<td>1</td>
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<tr>
<td>Government relations</td>
<td>1</td>
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<td>Financial management</td>
<td>1</td>
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<td>Collaborative problem solving</td>
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<td>Oral communication skills</td>
<td>1</td>
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<tr>
<td>Written communication skills</td>
<td>1</td>
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<tr>
<td>Foreign language</td>
<td>1</td>
</tr>
<tr>
<td>Ethics</td>
<td>1</td>
</tr>
</tbody>
</table>

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C-3
6. Again using a scale of 1 to 10, where "1" means poor and "10" means outstanding, how would you rate the overall performance of your school in helping you prepare for your career?

Poor  1  2  3  4  5  6  7  8  9  10 Outstanding

6a. Why do you feel that way?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

7. How would you change your forestry school program to make it more relevant to the work you do today?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

8. How would you change your forestry school program to make it more relevant to the position you hope to hold in 10 years?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

9. How many years have you been in your current position _________ Years

10. How many years have you been working in forestry? _________ Years

You may use the stamped, self-addressed envelope to return the survey to us. Thanks again for your time, effort and opinions.
APPENDIX D
Profiles of Forestry Schools
(Alphabetical by State)

A total of 55 schools that offer baccalaureate or higher degree programs in forestry were contacted for the purpose of this study. They include the 48 schools that are accredited by the Society of American Foresters (SAF); one school that is a candidate for SAF accreditation; the members of the National Association of Professional Forestry Schools and Colleges (NAPFSC) that offer forestry studies; and a few additional small colleges where forestry studies are offered. All information was obtained from documents made available by the schools, including catalogs, brochures, websites, strategic plans, and letters from programs heads, or through conversations with program heads.

The following profiles of programs include a descriptions of the program’s mission, undergraduate degrees offered, graduate degrees offered, and SAF accreditation (where applicable). Note that SAF grants accreditation only to specific educational curricula, not to the school itself. Degree descriptions are generally limited to professional forestry degrees, although other degrees are listed to indicate the breadth of a department or college.

The following is a list of the programs that are included in this appendix:

<table>
<thead>
<tr>
<th>State</th>
<th>University</th>
<th>Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alabama</td>
<td>Alabama A&amp;M</td>
<td>Center for Forestry and Ecology</td>
</tr>
<tr>
<td></td>
<td>Auburn University</td>
<td>School of Forestry and Wildlife Sciences</td>
</tr>
<tr>
<td>Alaska</td>
<td>University of Alaska</td>
<td>Department of Forest Sciences</td>
</tr>
<tr>
<td>Arizona</td>
<td>Northern Arizona University</td>
<td>School of Forestry</td>
</tr>
<tr>
<td>Arkansas</td>
<td>University of Arkansas</td>
<td>School of Forest Resources</td>
</tr>
<tr>
<td>California</td>
<td>California Polytech</td>
<td>Natural Resources Management Department</td>
</tr>
<tr>
<td></td>
<td>Humboldt State University</td>
<td>Department of Forestry</td>
</tr>
<tr>
<td></td>
<td>University of California (Berkeley)</td>
<td>College of Natural Resources</td>
</tr>
<tr>
<td>Colorado</td>
<td>Colorado State University</td>
<td>Department of Forest Sciences</td>
</tr>
<tr>
<td>Connecticut</td>
<td>University of Connecticut</td>
<td>Department of Natural Resources and Engineering</td>
</tr>
<tr>
<td></td>
<td>Yale University</td>
<td>School of Forestry and Environmental Studies</td>
</tr>
<tr>
<td>Florida</td>
<td>University of Florida</td>
<td>School of Forest Resources and Conservation</td>
</tr>
<tr>
<td>Georgia</td>
<td>University of Georgia</td>
<td>School of Forest Resources</td>
</tr>
<tr>
<td>Idaho</td>
<td>University of Idaho</td>
<td>College of Forestry, Wildlife, and Range Sciences</td>
</tr>
<tr>
<td>Illinois</td>
<td>Southern Illinois</td>
<td>Department of Forestry</td>
</tr>
<tr>
<td></td>
<td>University of Illinois</td>
<td>Department of Natural Resources and Environmental Sciences</td>
</tr>
<tr>
<td>Indiana</td>
<td>Purdue University</td>
<td>Department of Forestry and Natural Resources</td>
</tr>
<tr>
<td>Iowa</td>
<td>Iowa State</td>
<td>Department of Forestry</td>
</tr>
<tr>
<td>Kentucky</td>
<td>University of Kentucky</td>
<td>Department of Forestry</td>
</tr>
<tr>
<td>Louisiana</td>
<td>Louisiana State University</td>
<td>School of Forestry, Wildlife, and Fisheries</td>
</tr>
<tr>
<td></td>
<td>Louisiana Tech University</td>
<td>School of Forestry</td>
</tr>
<tr>
<td>Maine</td>
<td>University of Maine</td>
<td>College of Natural Sciences, Forestry, and Agriculture</td>
</tr>
<tr>
<td>State</td>
<td>Institution</td>
<td>Department</td>
</tr>
<tr>
<td>--------------</td>
<td>-----------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>University of Massachusetts</td>
<td>Department of Natural Resources Conservation</td>
</tr>
<tr>
<td>Michigan</td>
<td>Michigan State</td>
<td>Department of Forestry</td>
</tr>
<tr>
<td></td>
<td>Michigan Tech</td>
<td>School of Forestry and Wood Products</td>
</tr>
<tr>
<td></td>
<td>University of Michigan</td>
<td>School of Natural Resources and Environment</td>
</tr>
<tr>
<td>Minnesota</td>
<td>University of Minnesota</td>
<td>College of Natural Resources</td>
</tr>
<tr>
<td>Mississippi</td>
<td>Mississippi State</td>
<td>College of Forest Resources</td>
</tr>
<tr>
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Alabama A&M
School of Agriculture and Environmental Sciences
Center for Forestry and Ecology

Mission:
Information not provided.

Undergraduate Degrees Offered:
• BS in Forestry
  The curriculum in forestry integrates biological, physical, and social aspects of forest management while providing students with a fundamental appreciation for the various resources associated with forests. Two options are available. The Forest Management option is designed for those students who desire immediate employment in forestry. Those students who desire a more specialized education (in such areas as soil science biotechnology, environmental protection, molecular genetics, etc.), with the intention of pursuing post-graduate education, may elect to pursue the more flexible Forest Science option. In addition to these two options, several minors are available to students.

Graduate Degrees Offered:
Information not provided

SAF Accreditation: Candidate for SAF accreditation for the BS in Forestry, option in Forest Management.

Auburn University (Auburn University, AL)
School of Forestry and Wildlife Sciences

Mission:
As the State of Alabama’s only accredited forestry degree program, the School’s mission is to develop and disseminate knowledge to enhance the understanding and stewardship of forests and related resources for the benefit of students, forestry professionals and society.

Undergraduate Degrees Offered:
• BS in Forestry
  The objectives of the forestry curriculum are to provide: 1) the fundamental knowledge regarding the resources that professional foresters typically manage and the multiple uses of those resources; 2) a general education integrating physical, social and biological sciences to prepare the forester for the role as steward of public and private forest resources; 3) training and skills needed for initial forestry employment, as well as for advancement to higher levels of managerial responsibility. The forestry degree is appropriate for students who seek employment in any aspect of forestland management from industrial lands where timber production is the primary objective, to public lands where recreation or environmental protection is often paramount. The curriculum emphasizes biological, ecological and economic considerations in forest management.
• BS in Forest Engineering (offered in conjunction with the College of Engineering)
  Forest Engineering students receive academic training that addresses the engineering of forest systems, natural resources, and related manufacturing industries. The goal of the program is to produce engineers grounded in basic and applied principles in engineering, forestry, natural resources, and biosystems.
• BS in Wildlife Sciences

Graduate Degrees Offered:
• Master of Forestry (MF)
  The MF programs prepare students for a professional employment in business, public agencies, consulting firms and forest industry. Two MF options are available; both are non-thesis programs. One, for students with undergraduate degrees in forestry, involves primarily advanced course work and can be completed in one year. A second MF program, for individuals with baccalaureate degrees in fields other than forestry, is a two-year program that begins with a 10-week summer field practicum.

Pinchot Institute for Conservation
• MS, PhD
The MS program, which involves research and a thesis and normally requires two years for completion, can be tailored for students with degrees in forestry, the biological sciences, physical sciences, economics, engineering, and business who are interested in sciences and research basic to their areas of prospective employment. The MS and PhD degrees are offered in the fields of forest biology and ecology, forest measurements, forest management/economics, timber harvesting/forest operations, and forest products.

SAF Accreditation: BS in forestry; BS in forest engineering.

University of Alaska (Fairbanks, AK)
College of Natural Resource Development and Management
Department of Forest Sciences

Mission:
Natural resources management is making and implementing decisions to develop, maintain, or protect ecosystems to meet human needs and values. The core natural resources management curriculum provides students with a broad education in the various natural resources and their related applied fields. Programs can be tailored to enhance a student’s depth or breadth in a given field of interest. The program is designed for students desiring careers in resources management or in other fields requiring knowledge of resources management, students planning advanced study, as well as those wishing to be better informed citizens.

The goals of the forestry program are: to produce graduates who are highly competitive in obtaining professional employment, who have the knowledge to perform well on the job and who are valued for work in Alaska and the circumpolar North; maintain close student interaction with faculty and provide opportunity for students to obtain practical professional experience as part of their education; and to prepare students for lifelong learning and responsible participation in decision making about the use of natural resources.

Undergraduate Degrees Offered:
• BS in Natural Resources Management
The Bachelor’s degree has three concentrations: Forestry; Plant, Animal, and Soil Sciences; and Resources. The forestry concentration offers students the opportunity to focus on the multi-resource management of forests and associated ecosystems for the sustained production of goods and services and to prepare for forestry related employment.

The University provides students with a foundation in the biological, social, and physical sciences and a blend of classroom, laboratory, and fieldwork to develop skills for a career in forestry. The forestry concentration leads to a professional degree in forestry.

Graduate Degrees Offered:
• MS in Natural Resources Management
The courses and curriculum for this program were developed in cooperation with groups and agencies that work professionally with resource management in Alaska.

The MS program offers both thesis and non-thesis options. The thesis option is designed for those intending to pursue management careers requiring thorough familiarity with research procedures and techniques in one or more of the resource fields, to proceed to doctoral programs, and/or to conduct research in management problems. The non-thesis option is designed for those planning a management career involving largely non-research responsibilities such as general planning and administration, communication and public information, and impact assessment.

SAF Accreditation: BS in Natural Resources Management, concentration in Forestry.
Northern Arizona University (Flagstaff, AZ)  
 College of Ecosystem Science and Management  
 School of Forestry

Mission:

The fundamental mission of the School is to foster the intellectual and personal development of our students, at both the undergraduate and graduate levels. We intend that our students be, first of all, liberally educated, secondly good citizens, and finally skilled professionals.

The School of Forestry educates students in ecosystem science and management by integrating instruction in biophysical and human systems. In Forestry, we cross traditional boundaries by applying a transdisciplinary approach and multiple resource knowledge to ecosystem studies. In Parks and Recreation Management, we emphasize human to nature interactions.

Undergraduate Degrees Offered:

- **BS in Forestry**
  In the School of Forestry's professional program, undergraduate students take three sequential semesters of integrated, immersion, team-taught instruction. Students learn about forest ecosystems in the fall semester of their junior year; the emphasis shifts to management practices and human values of wildlands in the spring semester. In the capstone course (fall of senior year), students collect research data on a large forest area, use a computer-aided decision-support system to develop a management plan for that land, and write a report that comprehensively describes and analyzes how various management alternatives can meet multiple and often conflicting goals.

- **BS in Parks and Recreation Management**
  Students select one of four emphasis areas: community/commercial recreation, outdoor/environmental leadership, wildland recreation management, or an individualized program of study.

- **BS in Native American Forestry Program**
  The mission of the Native American Forestry Program is to develop educational and research activities that support Native American tribes in achieving self-determination in the management of their forest ecosystems.

Graduate Degrees Offered:

- **MS in Forestry**
  The masters program offers both thesis and non-thesis options. The non-thesis option is a terminal degree with the goal of preparing individuals for careers as land managers, in contrast to careers in research or education. The thesis option is an individually tailored program of study requiring two calendar years of academic work. It is designed to give students experience in carrying out the kind of research they desire to do in their professional careers.

- **PhD in Forest Science**
  The goal of the PhD program is to prepare individuals for a career in research and/or education. The program has three emphasis areas: ecosystem science, forest management sciences and economics, and forest social science.

*SAF Accreditation: BS in Forestry.*

University of Arkansas (Monticello, AR)  
 School of Forest Resources

Mission:

The mission of the School of Forest Resources is to educate professional forest and wildlife resource managers, to enlarge the body of knowledge in renewable forest resources and to disseminate new ideas and technology. Successful accomplishment of this mission will promote and enhance management, conservation and appreciation of public and private forests, thereby providing for continuous production and optimum attainment of a variety of forest resources for the people of Arkansas, the South, and the nation. These resource benefits include the production of wood and fiber, wildlife, and clean water; as well as provision for recreation, aesthetic and other special values.
Undergraduate Degrees Offered:
• BS in Forestry
  In the forestry major, students are given a balance of general and professional course work. General course work includes both the General Education sequence and twelve hours of free electives. The professional sequence consists of a forestry core curriculum and a block of supportive requirements. A major component of the forestry core curriculum is the required eight-week Forestry Summer Camp, an outdoor experience that enhances the student’s leadership skills, decision-making abilities, and other professional expertise.
• BS in Wildlife Management
  The Wildlife Management major is a professional program designed to give students a broad scientific background for management and perpetuation of wildlife resources.

Graduate Degrees Offered:
• MS in Forest Resources

SAF Accreditation: BS in Forestry.

California Polytechnic State University (San Louis Obispo, CA)
Natural Resources Management Department

Mission:
The mission is to provide the highest quality undergraduate program in sustainable forestry and natural resources management that integrates related disciplines and strives for a forest ecosystem perspective. This integrated program consists of unique areas of study in watershed, fire and chaparral management, urban forestry, hardwood management, environmental management, and parks and forest recreation.

Undergraduate Degrees Offered:
• BS in Forestry and Natural Resources
  The Bachelor of Science degree program in Forestry and Natural Resources prepares students for important careers in the protection, management, and development of our forest and natural resources. Students may elect to emphasize forest and land management disciplines, such as recreation management; urban forestry; environmental management; watershed, chaparral and fire management; hardwood management; wildlife biology.
• BS in Recreation Administration
  The BS degree program in Recreation Administration offers professional preparation for employment in public, non-profit, private, and commercial leisure service organizations.

Graduate Degrees Offered:
• MS in Forestry Sciences

SAF Accreditation: BS in Forestry and Natural Resources.

Humboldt State University (Arcata, CA)
College of Natural Resources and Sciences
Department of Forestry

Mission:
The forestry program has six goals: Attract and retain well-qualified and motivated students; maintain relevancy and excellence in undergraduate forestry education and instill a recognition for the need for interdisciplinary cooperation; educate students to be thinking, responsible citizens, well prepared to be leaders in their communities and profession; produce graduates who possess the technical knowledge and professional qualities needed by a rapidly
changing society; provide continuing education for professionals in the field of forestry; and provide for faculty development and increased teaching effectiveness through active involvement in research, professional activities, and continuing education.

Undergraduate Degrees Offered:
- **BS in Forestry**
  The program in forestry is an integrative discipline, drawing from the biological, physical, social, and managerial sciences. The curriculum aids in understanding the biological complexities of the forest and the interactions between the forest and social and economic demands. The program provides sufficient background and depth of education to give students a sound basis for professional growth within a broad range of forestry-related careers.
  Options are available in Forest Production Management; Forest Resource Conservation; or Forest Resources Management.

Graduate Degrees Offered:
- **MS in Natural Resources**
  The MS degree in Natural Resources is available for those wishing to pursue a graduate degree in forestry/watershed management and other natural resources. The MS degree may be pursued as either a research degree or as a professional degree.

**SAF Accreditation:** BS in Forestry.

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**University of California – Berkeley (Berkeley, CA)**
**College of Natural Resources**
**Department of Environmental Science, Policy, and Management**

**Mission:**
The Department of Environmental Science, Policy, and Management (ESPM) was formed in 1993 by the merging of the Departments of Conservation and Resource Studies, Entomological Sciences, Forestry and Resource Management, Plant Pathology, and Soil Science. Each former department had world-recognized expertise in disciplines relevant to natural resource and environmental issues. ESPM integrates these disciplines into a single academic unit that combines both disciplinary and interdisciplinary education.

Undergraduate Degrees Offered:
- **BS in Forestry**
  The forestry major is the primary vehicle for students intending to enter the profession of forestry. Its objective is the education of men and women to manage forests and related wildlands to yield their full capacity of wood, water, forage, wildlife habitat, recreational opportunities and other desired environmental benefits.
  The forestry curriculum is composed of three parts: (1) a two-year preparatory program in basic physical, biological, and social sciences; (2) a required eight-week summer field program immediately preceding the junior year, and (3) a two-year professional program. More than one-third of the upper division program is taken as a combination of restricted and free electives. This enables students to acquire either a highly specialized or a broad knowledge of professional forestry. In addition, students may develop specialized programs in such areas as forest ecology, silviculture, and timber management; range ecology and management; wildlife biology and management; watershed management and hydrology; recreation and park management; and resource economics and planning.

Graduate Degrees Offered:
- **Master of Forestry (MF)**
  The MF degree is the advanced professional forestry degree granted by the Department. The student who has completed an undergraduate curriculum in forestry is usually broadly trained in the principles of forestry, but has not yet had the opportunity to become proficient in the application of these principles to diverse problems involved in professional practice. The MF program is designed to advance the student’s understanding of the essentials of
professional forest management at the graduate level within the context of resource and environmental planning of sustainable systems. The program consists of three components: coursework, an internship, and a professional paper.

- **MS and PhD in Environmental Science, Policy, and Management**
  The Department offers both the MS and the PhD degrees in Environmental Science, Policy, and Management. The degree programs address current and future anthropogenic environmental problems of major social and political impact, which are based in the biological and physical sciences. The goal of the program is to provide both a strong disciplinary education and broadly based experience in cross-disciplinary communication and problem solving.

*SAF Accreditation: BS in Forestry.*

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**Colorado State University (Fort Collins, CO)**
College of Natural Resources
Department of Forest Sciences

*Mission:* The mission of the Department of Forest Sciences is to serve the University and the profession of forestry by providing a high quality educational program in the discipline of forest sciences, by contributing new knowledge to the field through scholarly endeavors, and to disseminate that knowledge to the profession, the public, and the University through service and outreach activities.

*Undergraduate Degrees Offered:*
- **BS in Forestry**
  The major in forestry emphasizes professional training in multiple-use forestry. It also provides a broad education in the basic sciences as well as an introduction to the behavioral and social sciences, and arts and humanities. All students in the major must choose one of four concentrations (Forest Biology, Forest Fire Science, Forest Management, and Forest Business) that best suits their career objectives.
- **BS in Natural Resources Management**
  This curriculum is designed to provide the broadest possible exposure to natural resources. Opportunities exist for individualized advising to meet specific student objectives.

*Graduate Degrees Offered:*
- **Master of Forestry (MF)**
  The Department of Forest Sciences offers a Plan C (coursework only) Master of Forestry degree. Currently, MF specializations are offered in Forest Management and Spatial Data Analysis.
- **MS, PhD in Forestry**
  MS and PhD degrees are offered in the following specializations: Remote Sensing/Geographic Information Systems; Quantitative Analysis of Natural Resource Policy and Management; Forest Economics and Policy Analysis; Wood Engineering/Wood Science; Forest Ecology; Forest Ecosystem Management; and Forest Fire Science.

*SAF Accreditation: BS in Forestry, with concentrations in Forest Biology, Forest Fire Science, and Forest Management; BS in Natural Resources Management.*

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**University of Connecticut (Storrs, CT)**
College of Agriculture and Natural Resources
Department of Natural Resources and Engineering

*Mission:* The focus of the Department is to provide high-quality undergraduate and graduate education, to generate new knowledge by conducting research, and to provide extension and outreach programs in the field of natural resource management and engineering and environmental science.

*Pinchot Institute for Conservation*
Specific concentrations in the department are directed toward water, air, forests, fisheries, and wildlife resources, and remote sensing/geographic information systems. The department's overall purpose is to contribute to the solution of environmental problems, to increase the understanding of natural resources systems, and to enhance the wise management of these resources.

**Undergraduate Degrees Offered:**
- **BS in Natural Resources Management and Engineering (NRME)**
  The principle objective of the undergraduate program in the Department is to provide students with a rigorous education in natural resources management and technology, with a strong background in basic sciences and liberal arts. Courses selected by the student can be interdisciplinary or can emphasize a specific discipline such as wildlife, fisheries, or forest management, earth resource information systems, and atmospheric or water resources.

**Graduate Degrees Offered:**
- **MS in Land, Air, and Water Resources**

**SAF Accreditation:** None.

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**Yale University (New Haven, CT)**
**School of Forestry and Environmental Studies**

**Mission:**
The mission of the School of Forestry and Environmental Studies is to provide leadership, through education and research, in the management of natural resource systems and in the solution of environmental problems. Through its focused educational programs, the School develops leaders for major institutions concerned with the earth's environment. Through its research activities, the School fosters study in selected areas of particular importance for resource and environmental management. The School encourages long-range thinking about natural resources and the environment and urges its students to pass beyond the mere identification of problems to the actual design and management of their solutions.

**Undergraduate Degrees Offered:**
None

**Graduate Degrees Offered:**
- **Master of Forestry (MF)**
  The Master of Forestry program is a professional study aimed at training practitioners of forestry for administration and management of forest lands. The School of Forestry and Environmental Studies rejects departmentalization and strives to cooperate and integrate between disciplines as a faculty. The MF program reflects this. To address the future roles of the resource professional, the MF curriculum has a thematic pathway for the education of an individual within a graduate professional degree program. Conceptually, the pathway relies upon having three educational stages within the curriculum that facilitates the educational development of the student. Stage 1 is “Basic Knowledge,” Stage 2 is “Frameworks and Skills for Integrating Knowledge,” and Stage 3 includes “Synthesis and Analysis of Knowledge” and the “Capstone.”
- **Master of Forest Science (MFS)**
  This degree is intended for students who seek a master’s program with focus on a specific discipline, most often as preparation for a research career and doctoral study. Each MFS curriculum will have a disciplinary focus.
- **Master of Environmental Studies (MES)**
  This degree is designed for students with primary interests in regulatory, stewardship, education, consulting, or management careers dealing with natural resource or environmental issues.
- **Doctor of Forestry and Environmental Studies (DFES), PhD in Forestry**
  Doctoral work is concentrated in areas of faculty research, which currently encompass the following broad foci: ecosystem dynamics, structure, and function; conservation of biological diversity; management of forest ecosystems; coastal and watershed systems; property, institutions, and environment; and valuation, risk, and environmental decision

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Pinchot Institute for Conservation
making. The PhD degree is oriented toward research in the natural and social sciences as applied to natural resource and environmental problems. The DFES degree is intended for people whose career interests are oriented toward problem solving.

SAF Accreditation: MF.

University of Florida (Gainesville, FL)
    College of Agriculture
    School of Forest Resources and Conservation

Mission:
    The School’s mission is to develop, communicate, and apply knowledge for management and conservation of forest resources in an economically, ecologically, and socially sustainable manner.

Undergraduate Degrees Offered:
    • BS in Forest Resources and Conservation (BSFRC)
      Students may pursue majors in Forest Resources and Conservation (FRC) or in Natural Resource Conservation (NRC). Both majors provide a broad education, allowing graduates to advance in their careers to positions of greater responsibility and leadership. In addition to general education in the arts, history, humanities, and social sciences offered within the university, students receive thorough training in the basic sciences and in essential aspects of their chosen field. All students follow a common pre-professional curriculum and take five school-wide, required courses in addition to the specific curriculum designed for their major. These curricula provide a thorough understanding of natural ecosystems and the impacts imposed upon them by the varied and multiple needs they serve. Also stressed are the interrelationships between the various professional disciplines needed for effective management and conservation of natural resources.
      The FRC major provides understanding of forest resources and develops the expertise in forest resource management that is essential to meet contemporary and future needs for the vast array of social, environmental, and physical products of forest ecosystems. Students may select any of four specializations: forest resource management, urban forestry, international agroforestry, and forest science.

Graduate Degrees Offered:
    • Master of Forest Resources and Conservation (MFRC)
      The MFRC is a non-thesis degree intended primarily for individuals interested in additional professional training and specialization. An MFRC program can be developed in any area of interest such as: Forest Business Management, Agro/Tropical Forestry, Urban Forestry, Natural Resource Conservation, and Natural Resource Education and Extension.
    • MS; PhD
      The MS degree is intended for students wanting to further their knowledge and conduct research in any discipline related to forest resources. The PhD is an advanced research degree that entails mastery of a field of knowledge and research leading to a significant contribution in a discipline related to the broad area of forest resources and conservation.

SAF Accreditation: BS in Forest Resources and Conservation.

University of Georgia (Athens, GA)
    Daniel B. Warnell School of Forest Resources

Mission:
    Information not provided.

Pinchot Institute for Conservation
Undergraduate Degrees Offered:
- BS in Forest Resources (BSFR)
  The curriculum for the BSFR degree consists of two parts: the pre-professional portion that gives students a two-year foundation in the biological, physical and social sciences and the humanities; and the professional portion consisting of two years of forest resources courses (soils, ecology, dendrology, silviculture, hydrology, fish and wildlife biology, resource economics, resource management, and engineering). In addition to this general background, students are required to select one of four majors leading to the BSFR: Forestry, Wildlife, Fisheries and Aquaculture, or Forest Environmental Resources.

Graduate Degrees Offered:
- Master of Forest Resources (MFR)
  The MFR degree is normally a terminal degree, well suited for students desiring additional coursework in Forest Resources. No thesis is required.
  A joint degree program between the BSFR and the MFR will be offered starting in the fall of 1999. Admission to the joint BSFR/MFR program will generally occur at the end of the student’s first year in the School of Forest Resources’ Professional Program.
- MS, PhD
  The MS degree is suitable for students wishing to specialize in particular academic or scientific areas, for those planning academic, research, or staff specialist careers, and for those planning to pursue a PhD. The PhD is often regarded as a degree of specialized education within a relatively narrow field of expertise. However, in a professional school it may also be regarded as a broadening degree, particularly when the program is designed with planning, administration, and managerial goals in mind.

SAF Accreditation: BS in Forest Resources.

University of Idaho (Moscow, ID)
College of Forestry, Wildlife, and Range Sciences

Mission:
The mission of the College of Forestry, Wildlife, and Range Sciences is to be a dynamic, responsive educational institution of choice in the West that serves Idaho’s citizens, communities, natural resource organizations and industries, and the northern Rocky Mountain region, the nation and the international community by: 1) educating students, and graduating resource professionals with knowledge and skills that allow them to function in integrated resource management environments and science organizations; 2) creating knowledge and finding solutions to natural resource problems and regional development issues faced by communities, organizations, and industries; and 3) transferring ideas, information and technologies that foster learning, education, and economic development.

Undergraduate Degrees Offered:
- BS in Forest Resources
  The program provides students with a broad, integrated perspective of the diversity of forest ecosystems and the many resources – amenities, products, services, and values – that sustainable forest management makes possible for the people of the world. The BS in Forest Resources degree has four options: Administration, Production, Science, and Ecosystem Management.
- BS in Forest Products
- BS in Natural Resources Ecology and Conservation
- BS in Fishery Resources
- BS in Rangeland Ecology
- BS in Resource Recreation and Tourism
- BS in Wildlife Resources.
Graduate Degrees Offered:
- MS, PhD

Graduate programs are offered in most areas of specialization of forest resources. For the Master of Science, both thesis and non-thesis options are offered. The PhD degree is available with a major in forestry, wildlife, and range sciences.

SAF Accreditation: BS in Forest Resources.

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Southern Illinois University (Carbondale, IL)
College of Agriculture
Department of Forestry

Mission:
The mission of the Department of Forestry is to foster responsible stewardship of forest resources in Illinois, the Midwest, the nation, and on the international level. In pursuit of this mission, the departmental faculty engage in a coordinated program of teaching, research, and service that is dedicated to developing and disseminating appropriate technology, practices, and information.

Undergraduate Degrees Offered:
- BS in Forestry

Students can specialize in forest resources management or outdoor recreation resources management. The forest resources management curriculum is designed to prepare a student for a career in forest management and production, multiple-use resource management, or the forest products industry. The specialization in outdoor recreation resources management provides interdisciplinary training for students who plan to become managers of the nation’s wealth of outdoor recreation sites.

Graduate Degrees Offered:
- MS in Forestry

The Department of Forestry offers a program of study leading to the Master of Science degree in Forestry. Three areas of concentration are available: Forest Resource Management, Outdoor Recreation Resources Management, and Wood Science and Technology. Joint programs with departments such as Botany and Geography, leading to the PhD degree, are also available.

SAF Accreditation: BS in Forestry.

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University of Illinois (Urbana, IL)
College of Agricultural, Consumer, and Environmental Sciences
Department of Natural Resources and Environmental Sciences

Mission:
The Department of Natural Resources and Environmental Sciences endeavors to establish and implement research and educational programs that enhance environmental stewardship in the management and use of natural, agricultural and urban systems in a socially responsible manner.

Undergraduate Degrees Offered:
- BS in Forestry

The Forestry program prepares students for all phases of the management of forest properties (private or public, large or small) for the production of valuable wood products and for watershed protection, wildlife habitat, recreational enjoyment and other benefits. The program focuses on the management of natural resources in forested areas, including environmental quality and ecology. A separate option in Wood Products Industries was recently eliminated.
- BS in Natural Resources and Environmental Sciences

Pinchot Institute for Conservation
Within the Natural Resources and Environmental Sciences curriculum, students can choose from biological, social, or soil science options.

- **BS in Horticulture**
  Within the Horticulture curriculum, students can choose from options in production and management, horticultural science, and urban forestry.

**Graduate Degrees Offered:**
- **MS; PhD**
  The Department includes five major areas of research and teaching: agricultural entomology, fiber science, forestry, horticulture, and soil science. Two options -- thesis or non-thesis --are open to students who wish to pursue a Master of Science degree.

**SAF Accreditation:** BS in Forestry.

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**Purdue University (West Lafayette, IN)**
**College of Agriculture**
**Department of Forestry and Natural Resources**

**Mission:**
The mission of the Department of Forestry and Natural Resources is to develop and disseminate knowledge in the natural resource sciences associated with the protection, management, and sustainable use of forests and related ecosystems. Such resources include fish and wildlife, outdoor recreational opportunities, timber, and water. The department also has as part of its mission to develop and disseminate knowledge in wood science and technology since wood is a raw material derived from timber.

**Undergraduate Degrees Offered:**
- **BS in Forestry**
  The forestry program prepares students for professional careers with organizations that manage forest and related lands. Students apply biological, ecological, economic, and social knowledge to develop and administer forest management plans. The Department curriculum has common core requirements with the fisheries and aquatic sciences, natural resources, and wildlife curricula. Sustainable management of natural resource systems – focusing on forests, watersheds, and associated flora and fauna to meet the needs of society – is emphasized.
- **BS in Natural Resources**
- **BS in Fisheries and Aquatic Sciences**
- **BS in Wildlife**
- **BS in Wood Products Manufacturing Technology** (A joint effort of the Department of Forestry and Natural Resources and the School of Technology)

**Graduate Degrees Offered:**
- **MS in Forestry; MS; and PhD**
  The Department of Forestry and Natural Resources offers graduate study leading to the Master of Science in Forestry, Master of Science, and PhD in the following areas of specialization: forest biology, quantitative resources analysis, outdoor recreation and tourism, and wildlife science. The MS in Forestry is a research-oriented degree that prepares the individual for employment in his or her area of specialty or may provide background to continue for the PhD degree.

**SAF Accreditation:** BS in Forestry.

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Pinchot Institute for Conservation
Iowa State (Ames, IA)
College of Agriculture
Department of Forestry

Mission:
The Department of Forestry is committed to providing the highest quality education possible to undergraduate and graduate students interested in forest resource management or wood science. The Department offers courses that are concerned with the management of forest ecosystems for multiple benefits including wood and fiber products, biodiversity, recreation, water, wilderness, and wildlife.

Undergraduate Degrees Offered:
• BS in Forestry
  The primary goal of the undergraduate curriculum in forestry is to educate foresters to be capable of scientifically managing the nation's forestlands. The purpose of the undergraduate curriculum in forestry is to prepare students for professional employment in management and utilization of natural resources, and to equip them to function effectively in a complex society. Students majoring in forestry are required to choose one of the following options at the end of their sophomore year: forest resource management or forest products.

Graduate Degrees Offered:
• MS, PhD in Forestry
  The graduate program offers students the opportunity to specialize, and it further prepares them to identify problems related to forestry and to seek solutions to those problems through scientific inquiry. Areas of specialization for the MS degree are forest administration and management, forest biology, forest biometry, forest economics and marketing, and wood science. Areas of specialization for the PhD are forest biology-wood science, forest biometry, and forest economics.

SAF Accreditation: BS in Forestry.

University of Kentucky (Lexington, KY)
College of Agriculture
Department of Forestry

Mission:
The purpose of the Department of Forestry is to create and disseminate knowledge concerning renewable forest resources and to foster integrated solutions to forest resource challenges for the mutual benefit of the resource and the citizens of Kentucky. This vision is achieved through excellence in the three land-grant missions of the University of Kentucky: research, instruction, and extension.

Undergraduate Degrees Offered:
• BS in Forestry
  Students in Forestry study the biological and managerial principles of renewable natural resources and the use of wood, a major forest product. Students develop the skills required to formulate land management recommendations for particular tracts of land. The curriculum consists of university, pre-professional, professional, and specialty support components, as well as an eight-week summer camp.
• BS in Natural Resource Conservation and Management
  Natural Resource students focus on the inevitable conflicts that arise between society's needs to use natural resources and simultaneously to protect environmental quality. Within the Natural Resource major, students specialize in a “Science” or “Policy” option.

Pinchot Institute for Conservation
Graduate Degrees Offered:
• MS in Forestry; PhD

The graduate program in the Department of Forestry offers the degree of Master of Science in Forestry. Students can choose from a thesis or a non-thesis option in pursuing the MS. The PhD is offered through related fields, particularly interdisciplinary graduate programs in agricultural economics, animal science, biological science, crop science, plant physiology, and soil science.

SAF Accreditation: BS in Forestry.

Louisiana State University (Baton Rouge, LA)
College of Agriculture
School of Forestry, Wildlife, and Fisheries

Mission:
The mission of the School of Forestry, Wildlife and Fisheries is to maintain excellence in undergraduate and graduate education, basic and applied research, and development of technical expertise for the conservation, use, and economic development of the renewable natural resources.

Undergraduate Degrees Offered:
• BS in Forestry

All students in the forestry curriculum take a core of courses and choose one of two areas of concentration: forest management or ecosystem management. The curriculum is designed to educate students in fundamental sciences and in the theory and practice of renewable natural resources management and to prepare students for graduate study in more specialized areas of forestry.
• BS in Wildlife and Fisheries

Graduate Degrees Offered:
• MS in Forestry; PhD

The School offers the MS degree with a major in forestry, wildlife, or fisheries and the PhD degree in forestry or wildlife and fisheries science.

SAF Accreditation: BS in Forestry, major in Forest Management.

Louisiana Technical University (Ruston, LA)
School of Forestry

Mission:
To enhance the social, ecological and economic value of forest resources for the citizens of Louisiana and the nation through professional education, basic and applied research, and service to the public and various natural resource management professional groups.

Undergraduate Degrees Offered:
• BS in Forestry

The forestry major offers four areas of concentration: forest management, forestry business, wildlife management, and natural resources management. The curriculum consists of a University core, a Forestry core, and Professional Electives chosen within the student’s concentration.

Graduate Degrees Offered:
None

Pinchot Institute for Conservation
University of Maine (Orono, ME)
College of Natural Sciences, Forestry, and Agriculture
Departments of Forest Management and Forest Ecosystem Science

Mission:
The College of Natural Sciences, Forestry, and Agriculture specializes in programs related to understanding and responsible management of the world's natural resources. It consists of ten departments and one school that offer academic programs at both the undergraduate and graduate level. The basic mission of the College is to provide education, conduct research, and supply other public services in an academic unit with a proven and continuing reputation for superior performance.

Undergraduate Degrees Offered:
- BS in Forestry
  The goal of the program is to combine instruction in 1) the basic sciences and liberal arts that are fundamental to a college education, 2) practical forestry skills that will allow a graduate to compete for entry-level positions, and 3) fundamentals of applied forest resources and management sciences on which graduates can build throughout their careers.
- BS in Forest Engineering
  The Forest Engineering curriculum, a joint administrative responsibility of the Bio-Systems Engineering program and the Department of Forest Management, combines study in engineering and mathematics, the physical sciences, and forestry to provide a unique background so that students may solve engineering problems and produce engineering designs in the field of forestry while following careers emphasizing the design, planning, and management of tree harvesting systems, logging equipment, and environmental engineering in general.
- BS in Parks, Recreation, and Tourism
- BS in Wood Science and Technology
- BS in Forest Ecosystem Science

Graduate Degrees Offered:
- Master of Forestry (MF)
  The MF program is a professional, non-thesis master's program. The program prepares students for a career in forest management by enhancing the abilities of professional foresters with prior experience and by allowing a career change for non-foresters.
- MS in Forestry; PhD in Forest Resources
  Students may choose from a wide range of specialties, including wood science and technology; forest biological sciences; forest biometrics; forest economics and policy; management sciences; forest engineering; forest business administration; and forest-based park science, recreation, and tourism.

SAF Accreditation: BS in Forestry; BS in Forest Engineering; MF.

University of Massachusetts (Amherst, MA)
College of Food and Natural Resources
Department of Natural Resources Conservation

Mission:
The Department of Natural Resources Conservation will promote the stewardship of healthy and sustainable ecosystems that provide diverse human and community benefits. Teaching, research, and public service will fulfill this mission by emphasizing conservation and integrated natural resources management. By virtue of this mission and the

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breadth of expertise, the Department is uniquely qualified to provide an integrated environmental education, research results to professionals, and vital service to society in response to environmental problems and issues.

Undergraduate Degrees Offered:
- **BS in Forestry**
  Forests support and provide wood, water, and wildlife habitat, and the Forestry curriculum places special emphasis on coordinating the management of forests to produce a balance of these goods. The objective of the undergraduate forestry program is to provide a well-balanced education with both sound technical training in forest resources management and an exposure to social and behavioral sciences, the arts, history, and literature. The program emphasizes the unique forest resource problems of the region so that graduates are well equipped to deal with the complex, multiple-resource decision making required of public, consulting, and industrial foresters in the Northeast.
  During the first two years, students take a science-oriented core of basic courses, plus courses that provide an understanding of the ecological interactions of trees and other plants, animals, soil, water, and climate. In the junior and senior years, students take a core of courses that deal directly with the management of forests and other natural resources. Additionally, students choose one of four curriculum options: Forest Conservation, New England Forestry, Urban Forestry/Arboriculture, and Wildlife Habitat Management.
- **BS in Wildlife and Fisheries Biology**
- **BS in Wood Science and Technology**
- **BS in Natural Resource Studies**

Graduate Degrees Offered:
- **MS; PhD**
  The MS program offers thesis and non-thesis options.

SAF Accreditation: BS in Forestry, option in Forest Conservation.

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**Michigan State University (East Lansing, MI)**  
**College of Agriculture and Natural Resources**  
**Department of Forestry**

**Mission:**
The programs of the Department of Forestry are at the forefront of teaching and research in management policy, economics, conservation, and other aspects of the human dimension, as well as ecology, physiology, silviculture, and soil science. In fulfilling the university's land-grant mission, the Department is committed to serving the needs of Michigan's citizens.

Because of increased demand for forest products, concern for the environment, and rapidly changing technology, ensuring forests for our future requires forest specialists and managers not only trained in the principles of forest ecology, soil science, and silviculture, but also attuned to the fundamentals of other disciplines that affect forestry, such as political science, sociology, and the humanities.

Undergraduate Degrees Offered:
- **BS in Professional Forestry**
  Management is required to sustain our forests, and the professional forestry program provides graduates with the in-depth understanding of natural and social sciences necessary to manage forest ecosystems. Through hands on laboratory experiences and field studies, students develop the ability to manage forests for goals ranging from providing biological diversity to producing timber to creating wildlife habitat.
- **BS in Forest Conservation**
  The Bachelor of Science degree in forest conservation prepares graduates for careers in the public and private sectors that deal directly with forest conservation issues, ecological analysis, policy, planning, and decision making. The program emphasizes developing strong communication skills, which makes graduates highly qualified for analyzing and interpreting complex resource issues.

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Pinchot Institute for Conservation
Graduate Degrees Offered:
- MS, PhD

SAF Accreditation: BS in Professional Forestry.

Michigan Tech University (Houghton, MI)
School of Forestry and Wood Products

Mission:
The mission of the School of Forestry and Wood Products is to solve natural resource problems in response to the needs of science and industry. A major part of the School’s mission is to provide graduates with a general university education as well as knowledge and skills in the historical, ethical, conceptual, and practical bases of forestry, ecology, and wood science so they can effectively communicate this information to others and contribute to continued development of their profession.

Undergraduate Degrees Offered:
- BS in Forestry
  The baccalaureate program in forestry introduces students to all aspects of the profession. This degree is designed to educate students for scientific, technical, and management careers in forestry and renewable resource management. Forestry students choose from one of the following specializations: ecosystem management, wildlife ecology, or forest ecology.
- BS in Wood Science
  Wood Science students select from one of five areas of emphasis: business, wood chemistry, engineering, environmental science, and biotechnology.
- BS in Applied Ecology and Environmental Sciences

Graduate Degrees Offered:
- MS in Forestry and PhD in Forest Science
  Current research areas in forestry focus on Forest Ecology and Quantitative Forest Science

SAF Accreditation: BS in Forestry.

University of Michigan (Ann Arbor, MI)
School of Natural Resources and Environment

Mission:
The mission of the School of Natural Resources and Environment is to provide leadership in the generation of knowledge and the development of policies and skills to help practitioners manage and conserve natural and environmental resources to meet the full range of human needs on a sustainable basis.

Undergraduate Degrees Offered:
- BS in Natural Resources
  The BS degree program includes three concentrations: Resource Ecology and Management, Environmental Policy and Behavior, and Landscape Design and Planning.

Graduate Degrees:
- MS in Terrestrial Ecosystems
  The School of Natural Resources and Environment has recently eliminated its Master of Forestry program and gained SAF accreditation for its MS degree in Terrestrial Ecosystems with an emphasis in forestry. The overall mission of the Terrestrial Ecosystems Program (TEP) is to synthesize existing knowledge and develop new knowledge on the

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composition, structure, and function of forest landscape ecosystems. The teaching, research, and service of faculty in
the TEP deal with forest landscapes of uplands and wetlands as influenced by their associated aquatic ecosystems. This
kind of information is used to manage, conserve, and restore ecosystems in an ecological and sustainable manner.

The TEP falls within the Resource Ecology and Management (REM) concentration of the School of Natural
Resources and Environment. The REM concentration focuses on the development and use of scientific research to
generate new knowledge about species and ecosystems, and on the application of this knowledge to develop effective
management plans and policies for solving critical resource problems. This concentration includes fields of study in
aquatic ecosystems and terrestrial ecosystems.

SAF Accreditation: MS in Terrestrial Ecosystem Management.

University of Minnesota (St. Paul, MN)
College of Natural Resources

Mission:
The College of Natural Resources’ mission is to foster a quality environment by contributing to the management,
protection, and sustainable use of our natural resources through teaching, research, and outreach.

Undergraduate Degrees Offered:
• BS in Forest Resources
  This degree prepares students to plan, implement, and research the management, protection, and sustainable use of
  forest and related resources, including timber, water, wildlife, recreation, and aesthetics. Forest resources students may
  select between two tracks: Forest Management or Forest Science. Forest Management is for students who wish to
  become directly involved in forestland management or find employment in specialized areas such as resource planning,
  forest protection, or policy development. Forest Science is for students who wish to learn the fundamentals of forest
  resource management while gaining some depth in a self-selected basic or applied science related to forest resources.
• BS in Urban Forestry
  The urban forestry curriculum prepares students to plan and manage vegetation and associated natural resources in
  and near urban and rural communities. The curriculum prepares students for direct involvement in resource
  management or for specialized supporting roles in areas such as urban planning and environmental education.
  Biological and managerial sciences are emphasized.
• BS in Wood and Paper Science
• BS in Fisheries and Wildlife
• BS in Natural Resources and Environmental Studies
• BS in Recreation Resource Management

Graduate Degrees Offered:
• MS, PhD, MF
  The MS and the PhD in forestry, fisheries, or wildlife conservation, and the MF are offered through the Graduate
  School in cooperation with the College of Natural Resources. The forestry graduate programs include graduate
  offerings in the Department of Forest Resources and the Department of Wood and Paper Science.

SAF Accreditation: BS in Forest Resources; BS in Urban Forestry.

Mississippi State (Mississippi State, MS)
College of Forest Resources

Mission:
The mission of the College of Natural Resources is to promote the professional and intellectual development of
its students, expand through research the fundamental knowledge upon which the natural resources disciplines are based,
and help with the development and use of the forest, wildlife, and water resources of the state and nation through appropriate applied research, service, and technology transfer activities.

**Undergraduate Degrees Offered:**
- **BS in Forestry**
  The objective of the Forestry major is to prepare its graduates for professional, science-based careers in the management and use of forested ecosystems. By combining courses offering a broad general education with specialized professional courses, the curriculum of the Forestry major is designed to produce professionally competent graduates who have appropriate development in interpersonal relations, written and oral communications, cultural understanding, environmental awareness, and in professional ethics. In addition to completing the core curriculum of the Forestry major, each student must complete one of the three academic options for specialized study offered: Forest Management, Wildlife Management, and Environmental Conservation.
- **BS in Wildlife and Fisheries Science**
- **BS in Forest Products**

**Graduate Degrees Offered:**
- **MS, PhD**
  Graduate programs leading to a MS or PhD degree are offered in the Departments of Forestry, Forest Products, and Wildlife and Fisheries.

*SAF Accreditation: BS in Forestry.*

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**University of Missouri (Columbia, MO)**

**College of Agriculture, Food, and Natural Resources**

**School of Natural Resources**

**Mission:**
The mission of the School of Natural Resources is to enrich the quality of life through discovery and dissemination of knowledge to sustain natural resource and agricultural systems.

**Undergraduate Degrees Offered:**
- **BS in Forestry**
  Four emphasis areas are offered in forestry at the undergraduate level: forest resource management, urban forestry, industrial forestry, and individualized studies in forestry. The forestry degree is based on a foundation of communication, analytical, social science, humanities, and professional courses that provide students with prerequisites for additional professional courses as well as with a basic liberal education.
- **BS in Fisheries and Wildlife**
- **BS in Parks, Recreation, and Tourism**
- **Bs in Soil and Atmospheric Science**

**Graduate Degrees Offered:**
- **MS, PhD**
  Graduate research programs leading to the MS or PhD in Forestry are designed to prepare students for professional careers in industry, academic institutions, state and federal agencies, and consulting firms.

*SAF Accreditation: BS in Forestry, option in Forest Resource Management.*

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Pinchot Institute for Conservation
University of Montana (Missoula, MT)
School of Forestry

Mission:
The School of Forestry’s mission is to pursue excellence and foster understanding of biophysical and social processes among its graduates, faculty, and constituents to positively affect forest and wildland ecosystems, natural resource management, and associated human communities.

Undergraduate Degrees Offered:
- **BS in Forestry**
  This degree emphasizes the training and preparation of students in the art and science of multiple-use land management. Two areas of emphasis are offered in this degree: Forest Resources Management and Range Resources Management. The Forest Resources Management curriculum is designed to provide students with education and training in the art and science of resource analysis and in making and implementing land management decisions to provide for the best use of all resources of the forest environment.
- **BS in Resource Conservation**
- **BS in Recreation Management**
- **BS in Wildlife Biology**

Graduate Degrees Offered:
- **MS, PhD**
  The School of Forestry offers Master of Science degrees in Forestry, Resource Conservation, Ecosystem Management, Wildlife Biology, and Recreation Management, as well as a Doctor of Philosophy.

SAF Accreditation: BS in Forestry, option in Forest Resource Management.

University of Nevada (Reno, NV)
College of Agriculture
Department of Environmental Resource Sciences

Mission:
To provide superior instruction, research, and outreach benefiting Nevada’s diverse landscapes.

Undergraduate Degrees Offered:
- **BS in Environmental and Natural Resource Sciences**
  The Environmental and Natural Resource Sciences major balances a basic interdisciplinary background with flexibility in career choice. Students are educated in the physical, biological, chemical, and ecological sciences as they learn to apply analytical skills to diverse problems in rural and urban environments. Students are required to complete an option in the major. This can be Environmental Science, Natural Resources Management, Conservation Biology, or Hydrology.
  Within the Natural Resources Management option, students choose between Forest Management and Range Management. Forest management courses prepare students for careers as managers of forested lands. Emphasis is placed on the socioeconomic and technical forestry principles involved in the production and sustainability of forestlands including wood, water, wildlife habitat, forage, and recreation.

Graduate Degrees Offered:
Information not provided.

SAF Accreditation: None.

Pinchot Institute for Conservation
University of New Hampshire (Durham, NH)
College of Life Sciences and Agriculture
Department of Natural Resources

Mission:
The primary objective of the Department is to provide young people with the knowledge and skills necessary to become future leaders in the stewardship of the world's natural resources.

The long-term goals of the forestry program are to (1) educate professional foresters in a continuously improving SAF accredited Bachelor of Science in Forestry program oriented toward the practice of forestry in New Hampshire and the Northeast, but broad enough in scope to provide a BSF graduate background in national and international forestry practice, issues, and problems; (2) conduct advanced education in forestry through our Master of Science program and the University-wide PhD in Natural Resources; (3) conduct forest research required to advance the practice and study of forestry within New Hampshire, the Northeast region, and beyond; (4) actively assist in the extension mission of the College of Life Science and Agriculture.

Undergraduate Degrees Offered:
- BS in Forestry
  A major in forestry at UNH combines a basic education in social and natural sciences with a professional forestry education. As juniors, students choose between two options: Forest Management, for students who want a career in managing forest resources, and Forest Science, for those interested in biology, ecology, international forestry, or other areas of specialization.
- BS in Soil Science
- BS in Water Resources Management
- BS in Wildlife Management
- BS in Environmental Conservation

Graduate Degrees Offered:
- MS in Natural Resources; PhD

SAF Accreditation: BS in Forestry.

Rutgers University (New Brunswick, NJ)
Cook College
Department of Ecology, Evolution, and Natural Resources

Mission:
The Department of Ecology, Evolution, & Natural Resources was created in 1996 to foster research, teaching, and outreach at Rutgers University. The department is made up of faculty with similar interests drawn from Cook College/NJAES and the Faculty of Arts and Sciences.

The Department focuses on: the structure, function, and behavior of ecological systems and related natural resources; the theory and application of population genetics and evolution in natural and managed systems; the study of biodiversity and systematics; the interactions among ecological systems, natural resource systems, physical environments, and human society; the ways in which individual organisms, populations, ecological systems, and natural resource systems change as a consequence of natural and anthropogenic processes; and the management, conservation and restoration of ecological systems and related natural resources, including the development of environmental planning and policy.

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Undergraduate Degrees Offered:
- **BS in Natural Resources**
  The program offers major options in Professional Resource Management, Natural Resource Studies, and Conservation and Applied Ecology. The Professional Resource Management option replaces previous majors in Forestry, Wildlife, and Fisheries. The growing belief among practicing professionals and Rutgers faculty that breadth at the undergraduate level is the best preparation for professional natural resource management. By selecting appropriate courses in consultation with a faculty advisor, students interested in forestry can complete coursework that has been recommended by the Society of American Foresters.

Graduate Degrees Offered:
- **MS in Ecology and Evolution**
  The program offers graduate education and training in microbial, plant, animal, and human ecology.

SAF Accreditation: None.

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Cornell University (Ithaca, NY)
College of Agriculture and Life Sciences
Department of Natural Resources

**Mission:**
The mission of the Department of Natural Resources is to improve society’s stewardship of natural environments and their resources for enduring human use.

Undergraduate Degrees Offered:
- **BS in Natural Resources**
The Department’s undergraduate curriculum is designed to provide an enduring and broadly applicable education for students who choose to study natural resources. Early specialization is undesirable because most students redefine or more sharply define their goals during their four years of undergraduate study. Also, five or six years of college-level work are now needed to achieve professional competence in the specialties with which this department is concerned. Consequently, the Department urges a broadly-based education that emphasizes biological sciences and study of natural resources and their management. Students are expected to gain an understanding of the world around them and are exposed to ecological concepts and management approaches that may form a principal basis for their future decisions and education.

Students may choose to focus on one of the Department’s emphases: Fish and Wildlife Biology and Management; Ecology and Management of Landscapes; and Resource Policy, Management, and Human Dimensions.

Graduate Degrees Offered:
- **MS, PhD, and MPS**
The Graduate Field of Natural Resources offers opportunities for graduate study in the ecology, management, and policy of fishery, forest, wetland, wildlife, and other environmental resources. The Field of Natural Resources offers two research degrees – the MS and the PhD, and one professional degree – the Master of Professional Studies (MPS). The MPS is designed for individuals who have already embarked on a professional career and desire to upgrade their skills and knowledge.

SAF Accreditation: None.

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Paul Smith’s College (Paul Smiths, NY)
Natural Resources, Sciences, and Liberal Arts Division

Mission:
The Paul Smith’s College community provides a dynamic educational environment which encourages students to be actively engaged in their own learning experience by fostering creative ethical and intellectual growth.

Undergraduate Degrees Offered:
- BS in Natural Resources
  The purpose of the Bachelor of Science degree in Natural Resources is to study the interaction between human society and nature in regions under a protected area status. The program is centered in the Adirondack Park, six million acres of public and private lands. Students will gain through their studies an understanding of sustainable development of the national and global attempts to maintain ecosystem viability, along with economic activity.
  Students in the baccalaureate program in Natural Resources will have the option of pursuing concentrations in either Environmental Science or Management and Policy. The program is based on a 2+2 model of education. The students start their freshman year in one of the existing two-year programs. After receiving technical associate degrees, students stay on for an additional two years to receive a baccalaureate degree.

Graduate Degrees Offered:
None

SAF Accreditation: None.

State University of New York (Syracuse, NY)
College of Environmental Science and Forestry
  Faculty of Forestry

Mission:
The Faculty of Forestry, one of the nation’s major forestry programs, shares with companion forestry schools a search for truth and excellence through the scholarly endeavors of instruction, research, and public service. The Faculty of Forestry seeks to enlarge the body of knowledge in forestry and natural resources and to share that knowledge with society. The Faculty strives to provide quality educational opportunities which encourage students to think critically, synthesize knowledge, communicate effectively, and utilize technology responsibly.

Undergraduate Degrees Offered:
- BS in Forest Resources Management
  There are four options leading to the BS in Forest Resources Management: forestry, recreation resources management, water resources management, and wood products, as well as a joint biology/forestry option. The overall educational objectives of all these options are to: integrate biophysical and social processes into a framework for forest resources management; develop the basic knowledge of disciplines that contribute to intelligent forest resources management; develop data-gathering skills and the knowledge of measurement and analysis necessary to develop adequate information for management; integrate computing and communication skills across courses and laboratory exercises; integrate problem-solving processes and techniques, decision making, creative thinking, and ecosystem management concepts across courses and laboratory exercises; develop professionals who understand and incorporate ethics, professionalism, and citizenship as responsible resource managers and citizens.

All students complete a seven-week summer session in Field Forestry at the Wanakena campus in the western Adirondacks. Upper division courses are specific to the particular program option.
Graduate Degrees Offered:

- **Master of Professional Studies (MPS); MS; PhD**
  
  Graduate study programs in forest resources management are created to suit the needs of each individual student and are designed to prepare students for careers in resource administration, management, scientific research, professional education, and a variety of other specialized positions. Areas of study include: Policy and Economics; Forest Management; Recreation and Tourism; Watershed Management/Forest Hydrology; Silviculture and Tree Improvement; Forest Soil Science; Quantitative Methods and Geographic Information Systems.

**SAF Accreditation:** BS in Forest Resources Management, with options in forestry, recreation resources management, and wood products; plus the dual program in biology/forestry leading to the BS.

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**Duke University (Durham, NC)**

Nicholas School of the Environment

**Mission:**

The mission is education, research, and service to understand basic environmental processes and to protect and enhance the environment and its natural resources for future generations. Intrinsic to this mission are (1) a commitment to interdisciplinary approaches, (2) a commitment to objective and, where possible, quantitative approaches, (3) a commitment to principles of ecological integrity, (4) a commitment to the sustainable use of natural resources, and (5) a commitment to environmental education at all levels. The overall objective is to assist in the definition and resolution of problems confronting society, through excellence in natural resource and environmental education and research.

**Undergraduate Degrees Offered:**

None

**Graduate Degrees Offered:**

- **Master of Forestry (MF)**
  
  The MF degree concentrates on forest and associated resources, including timber, water, biodiversity, and recreation, and their management from an ecological and economic point of view. The graduate with an MF degree is qualified for employment as a professional forester in an administrative or staff position with federal and state agencies, industries, consulting firms, and other organizations concerned with forest and land management.

- **Master of Environmental Management (MEM)**
  
  The MEM degree is designed to develop expertise in planning and administering the management of the natural environment for maximum human benefit with minimum deterioration of ecosystem stability. MEM degree candidates choose one of five programs of study: Coastal Environmental Management; Environmental Toxicology, Chemistry and Risk Assessment; Resource Ecology; Resource Economics and Policy; or Water and Air Resources.

**SAF Accreditation:** MF.

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**North Carolina State University (Raleigh, NC)**

Department of Forestry

**Mission:**

The mission is to teach and promote the science and practice of forestry and natural resource management. The Department will (1) educate excellent baccalaureate foresters, who will combine diverse liberal arts and critical thinking skills, exceptional technical and field skills, and international awareness; (2) produce exceptional baccalaureate natural resource analysts and practitioners who have a detailed mastery of the natural sciences and public policies, combined with knowledge of professional managerial and resource ethics; (3) train superb graduate students who have advanced knowledge of scientific principles and methods and resource management practices; (4) maintain and enhance national leadership in forest-related biological and social science research; and (5) disseminate new knowledge through outreach.
and extension efforts to the citizens, interest groups, policy-makers, and professionals in North Carolina, the South, and the world.

*Undergraduate Degrees Offered:*
- **BS in Forest Management**
  The curriculum prepares students for professional careers as foresters. The curriculum teaches students how to measure and monitor forest conditions and health, regenerate and grow forest stands, manage wildlife habitat, and implement laws and policies.
- **BS in Natural Resources – Ecosystem Assessment**
- **BS in Natural Resources – Policy and Administration**
- **BS in Environmental Science – Watershed Hydrology**
- **BS in Wildlife Science**

*Graduate Degrees Offered:*
- **Master of Forestry**
- **Master of Wildlife Biology**
- **Master of Natural Resources Administration**
- **MS, PhD**

*SAF Accreditation:* BS in Forest Management.

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**Ohio State University (Columbus, OH)**

**School of Natural Resources**

*Mission:*
The School of Natural Resources offers professionally oriented educational programs in the area of environmental science and natural resources management. These programs are interdisciplinary and draw upon University-wide resources and capabilities. The instructional program is designed to develop persons qualified to perform effectively in managerial, research, and educational roles in natural resources and the improvement of environmental quality. The school, though its course offerings, strives to develop in students of all disciplines an awareness of humankind’s dependence upon a finite resource base and of its responsibility to manage resources in a manner which assures a quality environment.

The mission of the forestry program is to provide a balanced, integrated program of teaching, research, and service focusing on forest ecosystem science and management. Specific goals include: a) to provide a professionally accredited undergraduate program stressing education of students in the ecological principles of forest ecosystem science, and in integrated management of ecosystem components for diverse benefits and values; b) to maintain research and graduate education programs emphasizing specific strengths in forest ecosystem science and management; and c) to provide leadership, service, and educational opportunities in issues related to forest ecosystem science and management to professionals and other interested persons within the university, the state of Ohio, and the region.

*Undergraduate Degrees Offered:*
- **BS in Natural Resources**
  Specializations are offered in environmental communication, education, and interpretation; environmental science; fisheries management; forestry; parks, recreation, and tourism administration; soil science; sustainable resource management; urban forestry; and wildlife management.
  The forestry program provides a balanced, integrated program of teaching, research, and service with specific strengths in forest biology, management, and reclamation. The program’s goal is to educate professional forest managers who can think critically and integrate ecological principles within socio-political frameworks.
  The forestry curriculum combines an intensive liberal arts core with a comprehensive professional forestry major; integrates social, biological, and applied sciences through senior capstone courses; and emphasizes private, non-industrial forestland management.
Graduate Degrees Offered:
- MS in Natural Resources
  The major areas of study within the forestry specialization include forest ecology, quantitative silviculture, forest economics, forest policy and management, utilization and marketing of forest products, spatial modeling approaches to forest management, ecosystem restoration, forest recreation, and tree improvement and forest genetics.

SAF Accreditation: BS in Natural Resources, with a major in forestry.

Oklahoma State University (Stillwater, OK)
Department of Forestry

Mission:
The mission of the OSU Department of Forestry has three components. First, to serve the people of Oklahoma, the nation and the world by providing educational opportunities that allow individuals to enter the profession of forestry and be leaders in the stewardship of forest resources. Secondly, to conduct scientific inquiries into the nature of forest resources and their sustained use by mankind. Finally, to provide existing knowledge of forest resources and the practice of forestry to people who manage public and private forest lands.

Undergraduate Degrees Offered:
- BS in Agricultural Sciences and Natural Resources
  Considerable breadth exists in the forestry curriculum, affording the student and faculty adviser the opportunity to develop a specialized curriculum focused on a wide array of natural resource specialties, such as water, recreation, range, or wildlife.
  Requirements include the successful completion of a nine-week summer camp, which has been held across the U.S. from Maine to Oregon to Montana to Florida, and even in Brazil. Students learn field forestry skills and state-of-the-art operations.

Graduate Degrees Offered:
- MS in Forest Resources
  The MS degree is for students interested in graduate training with a research orientation.
- Master of Agriculture
  The Master of Agriculture degree with an emphasis in forestry is offered for students interested in graduate professional training with an emphasis on applied problem-solving.

SAF Accreditation: BS in Agricultural Sciences and Natural Resources, with a major in forestry.

Oregon State University (Corvallis, OR)
College of Forestry

Mission:
The mission of the College of Forestry, as part of Oregon’s Land-Grant University, is to conduct distinctive problem-solving and fundamental research on the nature and use of forests and related resources, to effectively share our discoveries and knowledge with others, and to educate and engage the next generation of scholars, practitioners, and users of the world’s forest resources.

Undergraduate Degrees Offered:
- BS in Forest Engineering
  The Forest Engineering curriculum prepares students to perform a wide range of engineering tasks associated with the management of forestlands.

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• **BS in Forest Products**
  The Department of Forest Products prepares students for a broad range of careers in forest products and associated industries. Students in this curriculum receive a combination of science and business with a specific education in wood science and technology.

• **BS in Forest Resources**
  The Forest Resources Department provides broad-based education for those interested in natural resource systems and how to manage them. Two degree options are offered: Forest Management, which emphasizes the understanding and management of forest resources for multiple uses; and Forest Recreation Resources, which prepares managers of recreational opportunities in forests and other natural resource areas.

• **BS in Natural Resources**
  Graduates in Natural Resources will have an understanding of a range of natural resource problems. The program is a broad-based curriculum involving studies from the Colleges of Agricultural Sciences, Forestry, Liberal Arts, and Science, organized around a natural resources theme.

**Graduate Degrees Offered:**

• **Master of Forestry (MF); MS; PhD**
  The college of Forestry offers the MF, MS, and PhD degrees in four departments: Forest Engineering, Forest Products, Forest Resources, and Forest Science.
  Master of Forestry programs are designed to provide advanced technical and professional education and are intended for professional forestry specialists and natural resource administrators. A technical project, rather than a research thesis, is required. The MS and PhD degrees are research-oriented programs offering the opportunity to gain specialized knowledge and research skills in one or more academic disciplines.

**SAF Accreditation:** BS in Forest Engineering, BS in Forest Resources (both the Forest Management option and the Forest Recreation Resources option), MF in Forest Resources, MF in Forest Science with a concentration on Silviculture.

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**Pennsylvania State University (University Park, PA)**

**College of Agricultural Sciences**

**School of Forest Resources**

**Mission:**

The school’s mission is to provide educational opportunities and science-based information to protect, manage, and use natural resources for sustained benefits. This is accomplished through educational, research, and service programs in forestry, wildlife and fisheries, wood products, and related areas.

**Undergraduate Degrees Offered:**

• **BS in Forest Science**
  The Forest Science program is designed to help students develop the knowledge, skills, and professional ethics for understanding and managing forest ecosystems and living as responsible members of society. Students pursue one of four options: Forest Biology; Forest Management; Urban Forestry; and Watershed Management.

• **BS in Wildlife and Fisheries Science**

• **BS in Wood Products**

**Graduate Degrees Offered:**

• **Master of Forest Resources (MFR)**
  The Master of Forest Resources is a professional degree program for training students in applying a variety of technical skills towards interpreting and resolving forest resource-related problems. It emphasizes analysis, synthesis, and applications of knowledge, as compared to the traditional research goals of MS and PhD programs.

• **Master of Agriculture (M Agr)**
  The Master of Agriculture is a professional degree program that enables a student to develop communications skills applicable to forest resources or wildlife and fisheries science.

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Pinchot Institute for Conservation

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• MS, PhD
  The objectives are to gain proficiency in research, education, and scientific technology in forest science, wildlife and fisheries science, or wood products, and in allied basic science disciplines.

SAF Accreditation: BS in Forest Science, with options in Forest Management and Forest Biology.

Clemson University (Clemson, SC)
  Department of Forest Resources

Mission:
  Information not provided

Undergraduate Degrees Offered:
• BS in Forest Resource Management
  The BS in forest resource management prepares students for employment opportunities in both the public and private sectors. During the first two years in the forest resource management curriculum, students establish a strong base in liberal arts, mathematics, and biology. After sophomore year, students spend the summer in the field at the department’s summer camp program, developing hands-on forestry skills. During the last two years, students concentrate on natural resource management studies, developing an awareness of the interrelationship of wood, wildlife, water, and recreation resources.
• BS in Forest Products
  The program in forest products offers a broad education in humanities, social sciences, science, and technology, coupled with a thorough understanding of the properties and processing of wood.

Graduate Degrees Offered:
• Master of Forest Resources
  The Master of Forest Resources is a professional degree designed to broaden forestry skills and enhance understanding of natural resource management. This degree is often advised for non-forestry undergraduates.
• MS; PhD
  The MS is a research-oriented degree designed to enhance knowledge of a forestry discipline. The PhD degree is a research-oriented degree designed to help students understand and manipulate complex and diverse forest ecosystems and the products derived from them.

SAF Accreditation: BS in Forest Resource Management.

University of Tennessee (Knoxville, TN)
  College of Agricultural Sciences and Natural Resources
  Department of Forestry, Wildlife, and Fisheries

Mission:
  The mission of the department is to advance the management and utilization of natural resources in Tennessee, the region, and beyond through programs in teaching, research, and extension.

Undergraduate Degrees Offered:
• BS in Forestry
  The forestry major has two concentrations: Forest Resources Management and Wildland Recreation. The Forest Resources Management Concentration provides an opportunity to obtain an education related to the management of the broad spectrum of wildland resources. Students can specialize in forest biology, forest business management, forest economics, forest inventory, forest recreation, and wildlife management. The Wildland Recreation Concentration is an
interdisciplinary degree that prepares students to work in natural resource based recreation settings on private and public lands.

- BS in Wildlife and Fisheries Science

Graduate Degrees Offered:
- MS in Forestry or Wildlife and Fisheries Science

SAF Accreditation: BS in Forestry.

University of the South (Sewanee, TN)
Department of Forestry and Geology

Mission:
The main goal is to teach students to analyze, interpret, and predict natural phenomena in forested and geological systems. The emphasis is an interdisciplinary approach because of the very significant degree to which forest ecosystems and geological environments affect one another. To accomplish this goal, the department emphasizes study both within and outside the classroom, linking the classroom to the rest of the world by synthesizing (1) theoretical and conceptual aspects of the sciences of forestry and geology with (2) extensive fieldwork emphasizing detailed observations and careful data collection.

Undergraduate Degrees Offered:
Three majors are offered within the department: Forestry, Geology, and Natural Resources. Students may select either a BS or BA degree from each of these.
- Forestry
  The Forestry major stresses an understanding of the basic biological and physical processes that affect the functioning of the forested ecosystems. Forestry majors integrate traditional forestry courses (such as dendrology, silviculture, biometrics, forest ecology, and natural resource management) with a wide-ranging number of courses outside the department, including economics, biology, statistics, chemistry, and mathematics. In addition, courses in soils, hydrology, and geology are encouraged or required. Forestry majors also may participate in a 3-2 program with Duke University, taking three years of work at Sewanee and two years at Duke, culminating in both a Sewanee’s Bachelor’s degree and a Duke Master’s degree.
- Natural Resources
  The natural resource major is an interdisciplinary major which allows students with roughly equal interests in the forestry discipline and the geology discipline to gain a clearer understanding of the interrelationships between forested ecosystems and geological processes.

Graduate Degrees Offered:
None

SAF Accreditation: None.

Stephen F. Austin State University (Nacogdoches, TX)
Arthur Temple College of Forestry

Mission:
The College of Forestry’s mission is to provide leadership in addressing societal needs and to promote management, protection, and sustainable productivity and use of forest resources.

Pinchot Institute for Conservation
The College is dedicated to meeting teaching, research, and service needs encountered in professional management of land and related forest resources. Its primary purpose is to provide students with the education and field experience required for success in their chosen professions. A secondary goal is to make available the knowledge and expertise required to solve problems of resource management and use.

**Undergraduate Degrees Offered:**
- **BS in Forestry (BSF)**
  The Forestry program requires completion of: a general education core of courses designed to provide broad education in the Arts and Sciences; a core of forestry courses designed to provide broad exposure in all areas of Forest Land Management; a field station program designed to integrate previous course work into practical field experience; and a major designed to provide added expertise in a specialized field of forestry. Major options include: Forest Management; Forest Wildlife Management; Forest Recreation Management; Range Management; and Forestry (individually tailored program).
- **BS in Environmental Science**

**Graduate Degrees Offered:**
- **Master of Forestry (MF)**
  This degree is for students with a bachelor’s degree in a field other than forestry but who wish to become practicing foresters.
- **MS in Forestry (MSF)**
  This degree is for students with a bachelor’s degree in forestry who wish to further their education in forest resources either for professional career or future work towards a doctoral degree.
- **Doctor of Forestry (DF)**
  The DF degree is designed to provide in-depth education and training in a specific area of forestry.

**SAF Accreditation:** BS in Forestry, with options in Forest Management, Forest Wildlife Management, Forest Recreation Management, and Forestry.

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**Texas A&M University (College Station, TX)**
**College of Agriculture and Life Sciences**
**Department of Forest Science**

**Mission:**
The mission of the Department of Forest Science is to meet the education, research, and extension needs related to the development and application of knowledge and technology for forestry policy and management, forest regeneration, and wood products manufacture and use.

**Undergraduate Degrees Offered:**
- **BS in Forestry**
  Students choose options in Forest Management or Urban Forestry. Urban Forestry is for students interested in the management of trees and forests in an urban environment leading to careers with municipalities, tree care firms, utility companies, and consulting firms. Students enrolling in Forest Management work with their advisor to select courses allowing them to specialize their training in areas such as: Education and Public Relations; Information Technology; Integrated Resource Studies; International Forestry; Management; Production Technology; Restoration Forestry.

**Graduate Degrees Offered:**
- **Master of Agriculture (MAgr)**
  The MAgr degree is a professional degree for students who are seeking greater scientific and managerial competence.

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Pinchot Institute for Conservation
• MS; PhD
These programs are designed to provide a background for career opportunities in forestry research, management and operational activities in natural resources and related fields. A non-thesis option for the MS degree is available to students not intending to pursue a research career.

SAF Accreditation: BS in Forestry, option in Forest Management.

Utah State University (Logan, UT)
College of Natural Resources
Department of Forest Resources

Mission:
The faculty and staff of the Forest Resources Department are committed to providing quality education, research, and service in the science and management of forest ecosystems. These ecosystems will be addressed at various scales in such a way as to ensure their long-term viability, while providing a sustainable array of social values for existing and future generations.

Undergraduate Degrees Offered:
• BS in Forestry
Forestry majors work to gain the knowledge and skills they will need to manage public or private forests for a wide variety of resources: timber, recreation, water, biological diversity, and more. The goal is to provide America’s future foresters with the broadest possible understanding of the biological, physical, economic, political, and social environment that they will be working in as forestry professionals.

• BS in Recreation Resource Management
The Recreation Resource Management major prepares students for careers managing outdoor recreation settings. Because those jobs require an understanding of both the land itself and the people who visit these areas, the major offers a solid foundation in both biological and social sciences.

• BS in Environmental Studies

Graduate Degrees Offered:
• Master of Forestry (MF)
The MF has been developed to provide an opportunity for professional forestry work at an advanced level. It is designed for students who do not have a bachelor’s degree in forestry and who wish to qualify as professional foresters.

• MS; PhD
The Department offers the Master of Science and PhD degrees in forestry, forest ecology, recreation resources management, and watershed management.

SAF Accreditation: BS in Forestry; BS in Recreation Resource Management; MF.

University of Vermont (Burlington, VT)
School of Natural Resources

Mission:
The School of Natural Resources seeks to cultivate an appreciation and enhanced understanding of ecological and social processes and values aimed at maintaining the integrity of natural systems and achieving a sustainable human community. The School pursues this goal by generating and broadly disseminating knowledge and by challenging students, colleagues, and citizens to acquire knowledge, skills, and values to become innovative, environmentally responsible, and accountable leaders.

Pinchot Institute for Conservation

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Undergraduate Degrees Offered:

- BS in Forestry
  The Forestry Program emphasizes the health, productivity, and sustainability of forest ecosystems across a mosaic of ownerships with diverse management objectives. Valuing diversity in all its forms, the program provides an education that integrates the principles of biological, ecological, and social sciences, with an appreciation for the humanities. The program promotes the ethics of good stewardship and emphasizes practical experience, good judgement, and creativity.

  The required core of Forestry courses builds directly on the SNR core curriculum and provides an interdisciplinary, field-oriented understanding of the fundamental knowledge and skills that are needed to meet the numerous and changing demands put on our forests. The Forestry program offers three options: Forest Biology; Forest Resources Management; and Urban Forestry and Landscape Horticulture.

- BS in Wildlife and Fisheries Biology
- BS in Recreation Management
- BS in Resource Economics
- BS in Environmental Studies
- BS in Natural Resources
- BS in Environmental Sciences

Graduate Degrees Offered:

- MS; PhD
  The goal of the MS program is to provide graduate students with advanced training in forestry science and the opportunity to further their knowledge and proficiency in some specialized aspect of forestry. Specializations include: Forestry, Wildlife and Fisheries Biology, Natural Resource Planning, or Water Resources. There is a Thesis Option and a Project Option. The PhD program provides the opportunity for focused, in-depth research in any of the specialties of the school, while fostering an interdisciplinary appreciation and perspective through course work and interactions with ecological, physical, and social scientists in an integrated academic setting.

SAF Accreditation: BS in Forestry, option in Forest Resources Management.

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Virginia Polytechnic Institute and State University (Blacksburg, VA)
College of Natural Resources
Department of Forestry

Mission:
The mission of the Department of Forestry is the education of undergraduate and graduate students, professional foresters, and the general public, and the generation of new knowledge concerning the management of forest resources.

Undergraduate Degrees Offered:

- BS in Forestry and Wildlife Resources
  The Department of Forestry prepares students for careers in the various aspects of production, maintenance, and utilization of forests for their commercial and social values. The options available are: Forest Resource Management; Industrial Forestry Operations; Environmental Resource Management; and Natural Resource Recreation. An important part of the options in Forest Resource Management and Forestry Operations is the hands-on experience that students gain at the field camp.

Graduate Degrees Offered:

- MS; PhD; Master of Forestry (MF)
  The MS (thesis option) and PhD are research oriented and require the completion of a thesis or dissertation and appropriate course work. Areas of focus include: Forest Biology, Forest Biometrics, Forest Management/Economics, Forestry Operations, and Outdoor Recreation. The MF is professionally oriented.

SAF Accreditation: BS in Forestry and Wildlife (all options).

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Pinchot Institute for Conservation
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University of Washington (Seattle, WA)
College of Forest Resources

Mission:
The College of Forest Resources is dedicated to generating and disseminating knowledge for the stewardship of natural and managed environments and the use of their products and services through teaching, research, and professional and public outreach.

Undergraduate Degrees Offered:
• BS in Forest Resources
  Six undergraduate majors leading to the Bachelor of Science in Forest Resources degree are offered: Conservation of Wildland Resources; Forest Engineering, Forest Management; Paper Science and Engineering; Urban Forestry; and Wildlife Science.
  The goal of the Forest Management curriculum is to educate students to be able to perform as professional forestland managers in the public and private sectors. Four components of specialized education are the cornerstones of the program: forest biology and soils; measurement techniques; resources management skills including political science, economics, planning, and multiple-use aspects; and forest resource policy and administration.

Graduate Degrees Offered:
• Master of Forest Resources (MFR); MS; PhD
  Graduate program areas include: Forest Economics; Forest Engineering and Hydrology; Forest Products Marketing; Quantitative Resources Management; Silviculture and Forest Protection; Social Sciences; Forest Ecosystem Analysis; Forest Soils; Wildlife Science; Paper Science and Engineering; and Urban Horticulture.
SAF Accreditation: BS in Forest Resources, curriculum in Forest Management.

Washington State University (Pullman, WA)
Department of Natural Resource Sciences

Mission:
The objectives of the Department of Natural Resource Sciences are to prepare students for careers in forestry, range, wildlife, and wildland recreation professional areas with a holistic perspective on resource management and an ability to conduct research in natural resource sciences that will increase the basic knowledge and productivity of the resources while maintaining or improving the aesthetic qualities.

Undergraduate Degrees Offered:
• BS in Natural Resource Management
  Students pursuing the BS in Natural Resource Management must major in one (or more) of four areas: forestry, range management, wildlife management, and wildland recreation management. All majors share a set of basic science and General Education requirements and a core of natural resource courses. In addition, each major has a specialized curriculum designed to meet the requirements of the appropriate profession and specific objectives set by the department’s faculty.
• BS in Natural Resource Sciences
  This area is offered for students most interested in the scientific basis of natural resource management and includes three majors: plant resource science, wildlife resource science, and a general natural resource science major which is developed by the student and his/her advisor.

Graduate Degrees Offered:
• MS in Natural Resource Sciences
  The MS in Natural Resource Sciences emphasizes the conduct of original research by the student.
• **MS in Natural Resources**  
The MS in Natural Resources is a non-thesis degree with options in forestry, range management, wildland recreation, and wildlife. This degree serves the needs of professionals seeking to upgrade their education and is coursework-oriented.

• **PhD in Environmental and Natural Resource Sciences**  
The program in Environmental Science and Regional Planning and the Department of Natural Resource Sciences offer a joint PhD degree.

**SAF Accreditation:** BS in Natural Resource Management, with a major in Forestry.

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**West Virginia University (Morgantown, WV)**  
**College of Agriculture and Forestry**  
**Division of Forestry**

**Mission:**  
The mission of the College is teaching, research, and outreach.

**Undergraduate Degrees Offered:**
• **BSF in Forest Resources Management**  
The Forest Resources Management program prepares students for an active role in the guidance or management of forests. The curriculum emphasizes the management of land for production of timber and wood products with due consideration given to other forest values such as wildlife habitat, recreational opportunity, and water quality. Students graduate with a clear understanding of how societal and economic goals can be met while maintaining the long-term productivity of forested lands. The program is one of the few baccalaureate programs in the nation that emphasizes the management of Appalachian hardwood forests.
  • **BSF in Wood Industries**
  • **BSR in Recreation and Parks Management**
  • **BS in Wildlife Resources**

**Graduate Degrees Offered:**
• **MS; PhD**  
  Graduate programs are available in Forest Resource Management, Wood Industries, Recreation and Parks Management, and Wildlife Resources.

**SAF Accreditation:** BSF in Forest Resources Management.

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**University of Wisconsin – Madison (Madison, WI)**  
**Department of Forest Ecology and Management**

**Mission:**  
The mission is to: advance excellence in education, research and extension related to forest ecosystems and their management through programs integrating biological, physical and social sciences and the humanities; provide a well-integrated interdisciplinary education based on science and management skills essential for leadership and service in the conservation and management of forest ecosystems; generate new knowledge about domestic and international forest resources through basic and applied research; promote sound management and utilization of forest resources by transferring knowledge to the public for use in solving practical problems; assist in the development and implementation of the UW-System Center of Excellence for the Management and Conservation of Biological Resources.

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Pinchot Institute for Conservation
Undergraduate Degrees Offered:

- BS in Natural Resources
  There are four “tracks” available to students in the Department of Forestry. All lead to a BS degree in Natural Resources, with a major in Forest Science. During the first two years, the program emphasizes basic courses in the natural and social sciences. During the junior and senior years, students focus on a core curriculum of forestry courses and select one of four curricular tracks: Public Forestry, Industrial Forestry, Natural Resource Conservation and Management, and International Agriculture and Natural Resources. The first two tracks are designed for students who prefer to take an accredited degree program emphasizing knowledge and skills typically required of professional forest managers.

- Dual BS/MS program
  The dual BS/MS program in forestry allows students to simultaneously accrue credits toward their undergraduate and graduate requirements. In the BS/MS program, students concentrate on a field in which they are most interested. They can select from areas such as forest soils, forest biology, wood and fiber science, forest management, administration, biometrics, business, remote sensing, or biotechnology.

Graduate Degrees Offered:

- MS
  Graduate studies are offered in Forest Biology, Forest Management, and Wood and Fiber Science. There is a thesis and a non-thesis option.

SAF Accreditation: BS in Natural Resources, tracks in Public Forestry or Industrial Forestry; BS/MS program.

University of Wisconsin – Stevens Point (Stevens Point, WI)
College of Natural Resources

Mission:
The objectives of the Forestry Program are: (a) to provide a sound undergraduate program of forestry education, (b) to support and enhance the other majors in the College of Natural Resources and other academic programs of the university, (c) to pursue new knowledge, (d) to apply contemporary forestry knowledge through continuing education and extension, and (e) to develop professionalism and esprit de corps among students alumni and faculty.

Undergraduate Degrees Offered:

- BS in Forestry
  The forestry curriculum is built on a core of selected forestry courses that meet the requirements of the Society of American Foresters, and the need of the student to understand the application of forestry to a broad range of resource management situations. Natural and physical sciences, mathematics, wildlife, water, and soils courses are prerequisites for advanced forestry courses. The five emphases within the forestry curriculum (Forest Management, Forest Administration, Wood Utilization and Marketing, Urban Forestry, and Forest Recreation) allow students to select course options that meet their career goals.

- BS in Paper Science
- BS in Resource Management
- BS in Soil and Waste Resources
- BS in Water Resources
- BS in Wildlife

Graduate Degrees Offered:

- MS in Natural Resources
  In the graduate program, students have the opportunity for advanced study, research, and involvement in natural resource-related professional activities. There is a thesis option and a non-thesis option.

SAF Accreditation: BS in Forestry, with majors in Forest Management, Forest Administration, Urban Forestry, and Forest Recreation.
APPENDIX E
Advisory Committee

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Society of American Foresters
Bethesda, MD

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Forestry Program Leader
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Syracuse, NY

Fred White
Chief Forester
The Forestland Group
Chapel Hill, NC
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Grey Towers Press is an activity of the Pinchot Institute for Conservation.
It carries out one part of the Institute’s mission:
to publish materials through research, conferences, and programs for the conservation community.

Publications available from Grey Towers Press include:

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From Historian to Environmental Activist, Two Essays in Conservation History,
by John F. Reiger. $8.95.
PUBLICATIONS

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Forest Certification Handbook for Public Land Managers
by Catherine M. Mater

[ ] 99-03
Understanding Forest Certification: Answers to Key Questions
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The Evolution of American Forest Policy: An Appraisal of the Past Century and a View to the Next
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Improving Performance and Accountability at the Forest Service: Overcoming the Politics of the Budgetary Process and Improving Budget Execution,
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Third Party, Performance-Based Certification of Public Forests: What Public Forestland Managers Should Know,
by Catherine M. Mater, V. Alaric Sample, James R. Grace, and Gerald A. Rose

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Building Partnerships for Sustainable Forestry Research,
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Policy Reports

[ ] Land Stewardship Contracting in the National Forests: A Community Guide to Existing Authorities, by Paul C. Ringgold, 1998 ($10.00 charge)


[ ] Natural Resources Strategic Planning: Components and Processes, by V. Alaric Sample and Dennis Le Master, 1995

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Pinchot Institute for Conservation
1616 P Street, NW
Suite 100
Washington, DC 20036

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Thank you!