

UC-Berkeley Hosts North American Summit on Forest Science Education

By Joseph M. Smith, Managing Editor, The Forestry Source

Working Group Discussions: Key Questions and Recommendations

The following are the questions each of the eight working groups was to consider in its deliberations, along with some of the recommendations.

Curricula: The Relationship between Forestry, Natural Resource Management, and Environmental Science/Studies (Chair: Steve Bullard, Stephen F. Austin State University and president of NAUFRP)

Key Questions:

- What are differing or defining roles of programs in “Forestry” vs. Natural Resource Management and Environmental Science/ Studies in terms of skills and abilities, knowledge, and behaviors that distinguish them from one another in preparing students for jobs in forest resource science and management?
- Is “forestry” attractive to students? If not, what needs to be done to make it a more desired program?
- What is the “operating environment” in terms of societal expectations, economic conditions, and national and international relations, and how should these shape forestry programs?

Among the Group’s Recommendations:

- Understand and deconstruct our systemic biases toward technical skills in forestry.
- Elevate the people-related KSABs, including coupled physical-human systems.
- Explicitly include the science of social systems in our curricula.
- Modify SAF accreditation standards to seriously emphasize human dimensions, public outreach and engagement, and other knowledge areas, skills, and behaviors that are people-related.

Distance Learning and New Education Models (Chair: Richard Standiford, University of California–Berkeley)

Key Questions:

- What are the opportunities for internet-based, distance learning education in forestry and forest science?
- How can we develop cooperative programs among two or more universities?
- How do we teach field skills? Opportunities for a hybrid model; highlight elements of strong programs?
- What measures of success can be used to evaluate programs?

Among the Group’s Recommendations:

- Workshop on developing forestry programs for distance learning.
- Survey of available online forestry learning resources.

- Develop consortium to create best management practices for forestry online courses.

Professional Master's Programs (Chair: John Innes, University of British Columbia)

Key Questions:

- What is the value of establishing professional master's (MF or MS) programs to provide advanced knowledge so that graduates are better prepared to deal with complex management and societal issues?
- Should these programs become the new "entry level" for professionals rather than the traditional 4-year programs?
- Should professional master's programs be accredited?
- Which employers recognize these, and for what purposes?
- What distinguishes between an MF and a professional bachelor's?
- Does this provide for an upgrade in technical skills for existing forestry majors, or is it a stand-alone program?

Among the Group's Recommendations:

- Conduct a survey of existing master's programs in forestry/natural resources in North America.
- Explore the possibility of university consortia to deliver programs.
- Explore whether employers will pay a premium for MF graduates.
- Ask NAUFRP to work with public agencies to explore the role of professional master's in the Pathways program.
- Take a more pro-active approach to post-BSc education and collaborate with employers in designing MF programs.

Role of Professional Accreditation (Chair: Carol Redelsheimer, Society of American Foresters)

Key Questions:

- What is the role of accreditation in forestry education from an administrative, academic, employment and prospective student perspective?
- Should accreditation standards for professional degrees continue to emphasize "science" and "skills" equally?

Among the Group's Recommendations:

- Importance and value of accreditation should be emphasized.
- Standards should ensure that there is some forestry expertise on a forestry faculty— and/or that exposure to practicing professionals is included within the curriculum.
- Re-examine how exactly faculty members are counted—or what is "sufficient."
- Wise incorporation of online education in a way that still incorporates field education.
- Accreditation should focus on assessment, and not delivery.

- Standards might have to be different for in-place vs. distance curricular components.

Employment Trends (Chair: Kent Connaughton, US Forest Service, Pacific Northwest Region)

Key Questions:

- What are employment trends, and how should these be reflected in forestry education?
- Are employers seeing less need for foresters vs. other natural resources specialists?
- Do employers perceive job potential for graduates with a more general natural resources degree?
- Is there a preference between hiring graduates from big or small universities, or from those that emphasize science compared with those emphasizing technical skills?
- Vacancies occur in mid- and senior-level positions. To what degree are employers open to bringing candidates from outside their organizations into these vacant positions, and is there a need to support development of mid- and senior-level competencies to facilitate such cross-boundary movements?

Among the Group's Recommendations:

- Connections with employers is essential for institutions to understand the needs of employers, not only to prepare students for careers, but to permit educational approaches to evolve. Consider advisory councils, social media connections, blind surveys, and alumni networks as sources of ongoing mechanisms to promote dialog about employer needs.
- The diversity of employer needs suggests that education must recognize and adjust to those diversity of needs, and then communicate with students so that they can pick and choose the path that best suits their interests. Some students will want a conventional, accredited education to prepare them for professional credentialing or historically-conventional employment, while others will want a diverse, personalized education as a part of their educational experience. The diversity of student needs may be accommodated through accredited programs, broader natural resource undergraduate education, or graduate-level education.
- The job-related experience of recent forestry graduates is not well understood, and would benefit from further inquiry and study.
- The identity of forestry and foresters as opposed to other natural resource competencies, careers, and professionals continues to perplex students and educators who must make choices affecting their futures. There is benefit to discussing the issue even when it does not lend itself to a definitive conclusion, and a continuing dialogue involving educators, students, recently-employed graduates, and employers is desirable to serve present and emerging conservation needs.

Forest Science in Research Universities (Chair: Hal Salwasser, Oregon State University)

Key Questions:

- What is the impact of the trend of decreasing emphasis in forest management science within many major universities in the United States and Canada?
- How important is it to employers that new graduates be versed in the foundation for scientific forestry vs. competency in the technology sciences related to forestry?
- How important is it to employers that new hires be graduates from research universities or non-research universities?
- What are the long-term implications of changes in structure of forestry programs in universities from stand-alone units to part of larger units such as under an “environment” umbrella?
- Given evolving changes in forestry program organization within universities, how much autonomy should forestry programs have to maintain control over forestry curricula, hiring, and maintaining core faculty competencies in professional forestry?
- In 25 years, what will be the typical structure of forest science education in research and non-research universities in the United States and Canada?
- What is the ideal organizational structure for administering forestry education in the 21st century?

Among the Group’s Recommendations:

- Loosen boundaries on the definitions of forestry and forest resources science, while acknowledging we have given up a lot of turf, e.g., carbon science in ecology programs. Also, green engineering and green materials are the roots of wood science, but material science programs now have the edge.
- Forestry must remain a science-based, science-informed discipline with a broader inclusion of the disciplines that contribute (biophysical and social). Aim to prepare people who are not only skilled communicators and listeners but also able to think creatively and critically.
- Communicate to employers that science-driven education supports innovation and problem solving.
- Be more prepared and proactive with regard to pending changes in university organization and priorities.
- Must not give up on trying to capture “science of sustainability” for forestry.
- Important to keep forests, forest resources, or forestry in the name of schools and college departments.

International Forestry Education (Chair: Peter Kanowski, Australian National University)

Key Questions:

- Is there a demand for graduates with an international focus? Can this best be provided through partnerships with international programs?
 - Are these opportunities driven by the increasing global nature of forestry or by values associated with graduates being more broadly educated?
 - What are the international trends related to forestry education?
 - What are the characteristics of successful international programs?
 - What are the main constraints to broader participation of students in international programs?
- Is second language competency a key competency for international forestry education?

Among the Group's Recommendations:

- Dialogue within universities to facilitate course/curriculum structure with appropriate international dimension; includes dialogue with students/international student associations, within & outside forestry (inc IFSA).
- Professional accreditation requirements impose real restrictions on flexibility/options for North American universities; dialogue between universities & SAF/CAFB.
- Challenges of students getting credit for courses taken at other institutions is a major barrier; collaborating institutions need to facilitate recognition/course choice through agreement about credits; dialogue between universities.
- Clearing house to facilitate movement of interns through existing structures—AUFSC, NAUFRP, IFPE, IFSA.
- Pursue opportunities for multi-university participation in international field courses (1-2- week intensives).
- Look to stronger relationships with “international” partners: FAO, CIFOR, ICRAF, and so on.

Diversifying Student Demographics (Chair: Terry Sharik, Michigan Tech)

Key Questions:

- Is there a demand for graduates with ethnic/race or gender differences?
- Why are females and minorities less attracted to natural resource disciplines than to other disciplines in many universities?
- Why are females and minorities less attracted to forestry than to most other disciplines in natural resources at most universities?
- Why are there differences among ethnic/ racial groups in their attraction to forestry and related natural resource disciplines?
- Why do some universities attract a higher percentage of females and minorities in forestry and related areas of natural resources than do other universities?

Among the Group's Recommendations:

- Call out discrimination wherever it exists programs, discuss it, and address it.
- Understand why different minority groups are attracted to certain fields.
- Select mentors to effectively interact with minorities; these individuals do not necessarily have to be members of minority groups themselves.
- Apply social science rigorously to better understand minority cultures in relation to forestry and natural resources.
- Create more effective partnerships with minority institutions.
- K-12 outreach to expose kids to forestry and natural resources.
- Discuss the possibility of doing participatory curriculum development (akin to participatory research) to incorporate the values of minority cultures.
- Make a better link between ecosystem health and human health and well-being so potential students deem forestry and natural resources to be just as important as the other disciplines traditionally sought (i.e., medical) to help the people in their communities.
- Develop two-pronged approach of both conducting research to improve understanding of the relationship of minorities to forestry and implement existing strategies in the literature to test their success.

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