

FORESTRY EDUCATION IN THE USA IN A CHANGING SOCIAL CLIMATE

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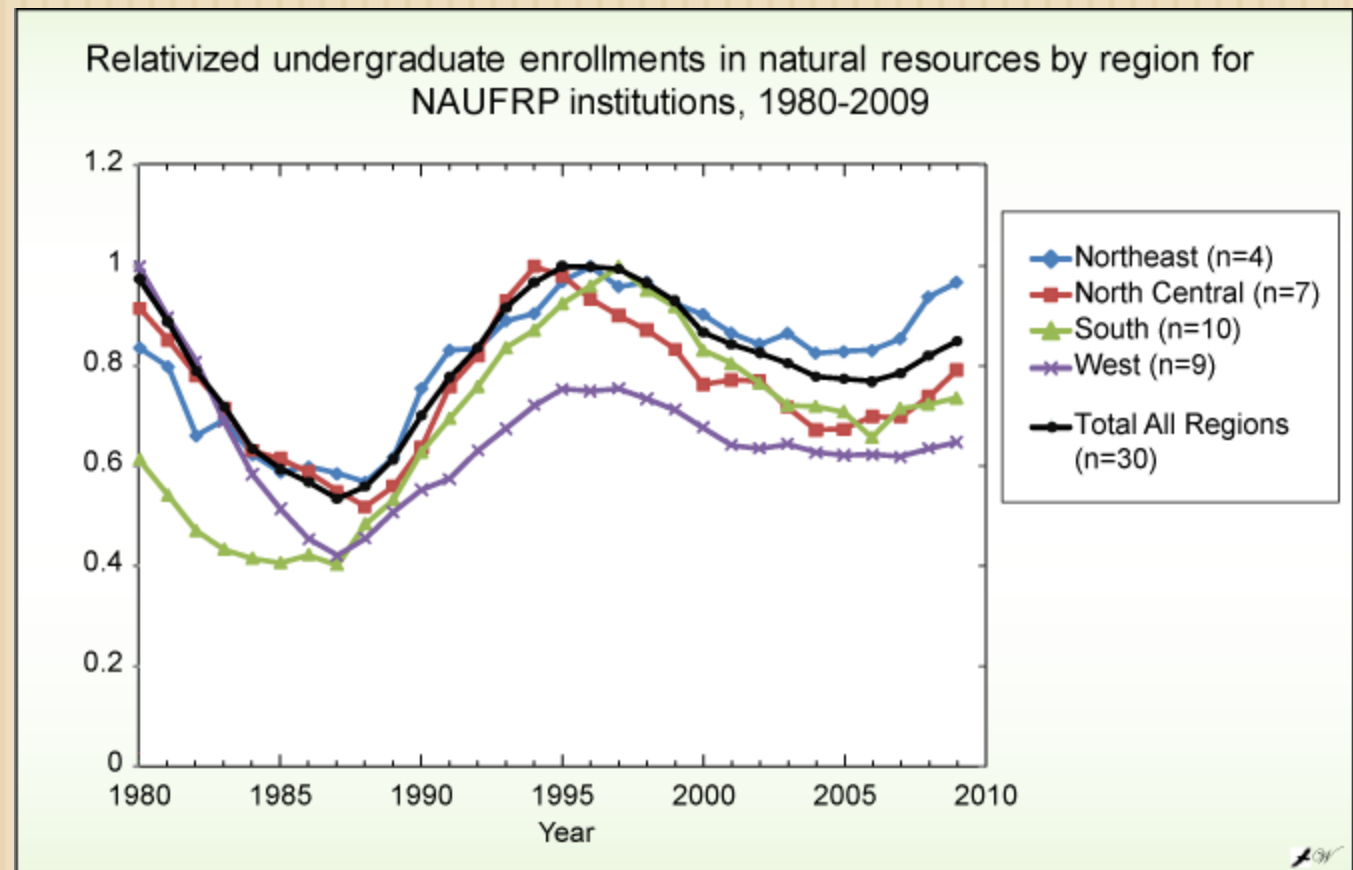
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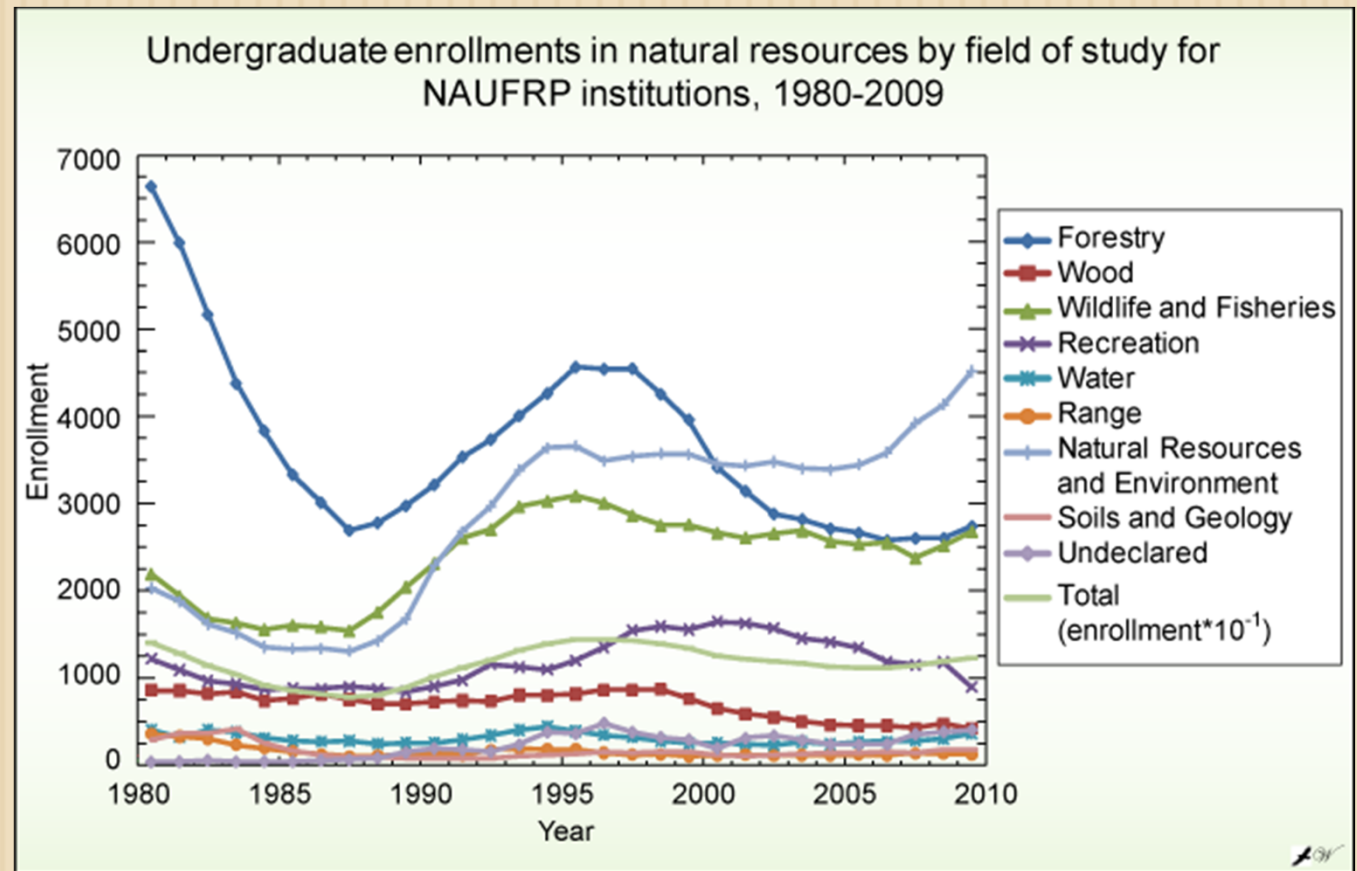
Undergraduate Enrollments in Natural Resources by Region for NAUFRP (National Association of University Forest Resources Programs) Institutions, 1980-2009

- Similar trends across all regions
- Peaks in early 1980s & mid 1990s
- Increasing since 2005-2006
- Overall decrease of 13% since 1980

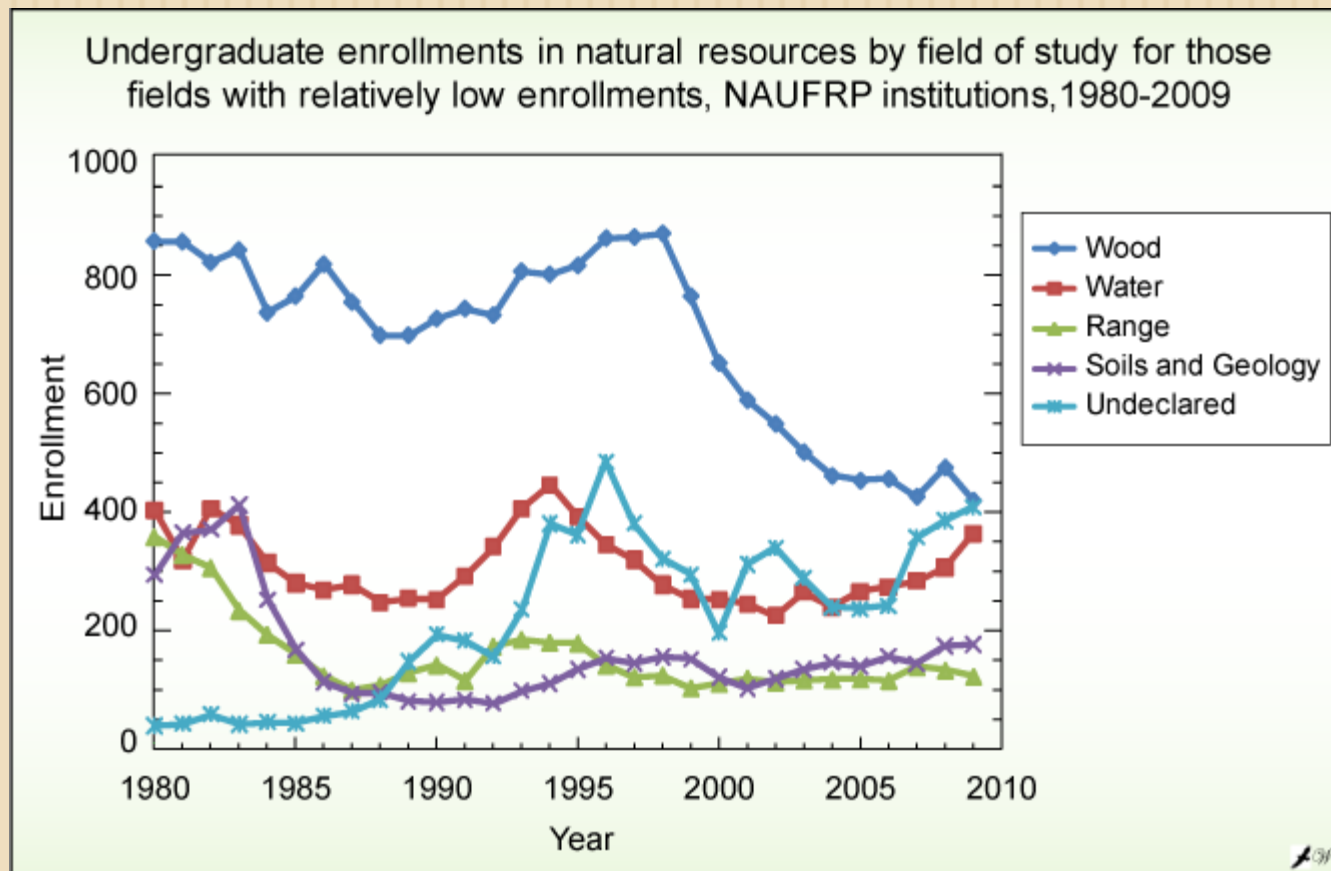


Undergraduate Enrollments in Natural Resources by Field of Study for NAUFRP Institutions, 1980-2009

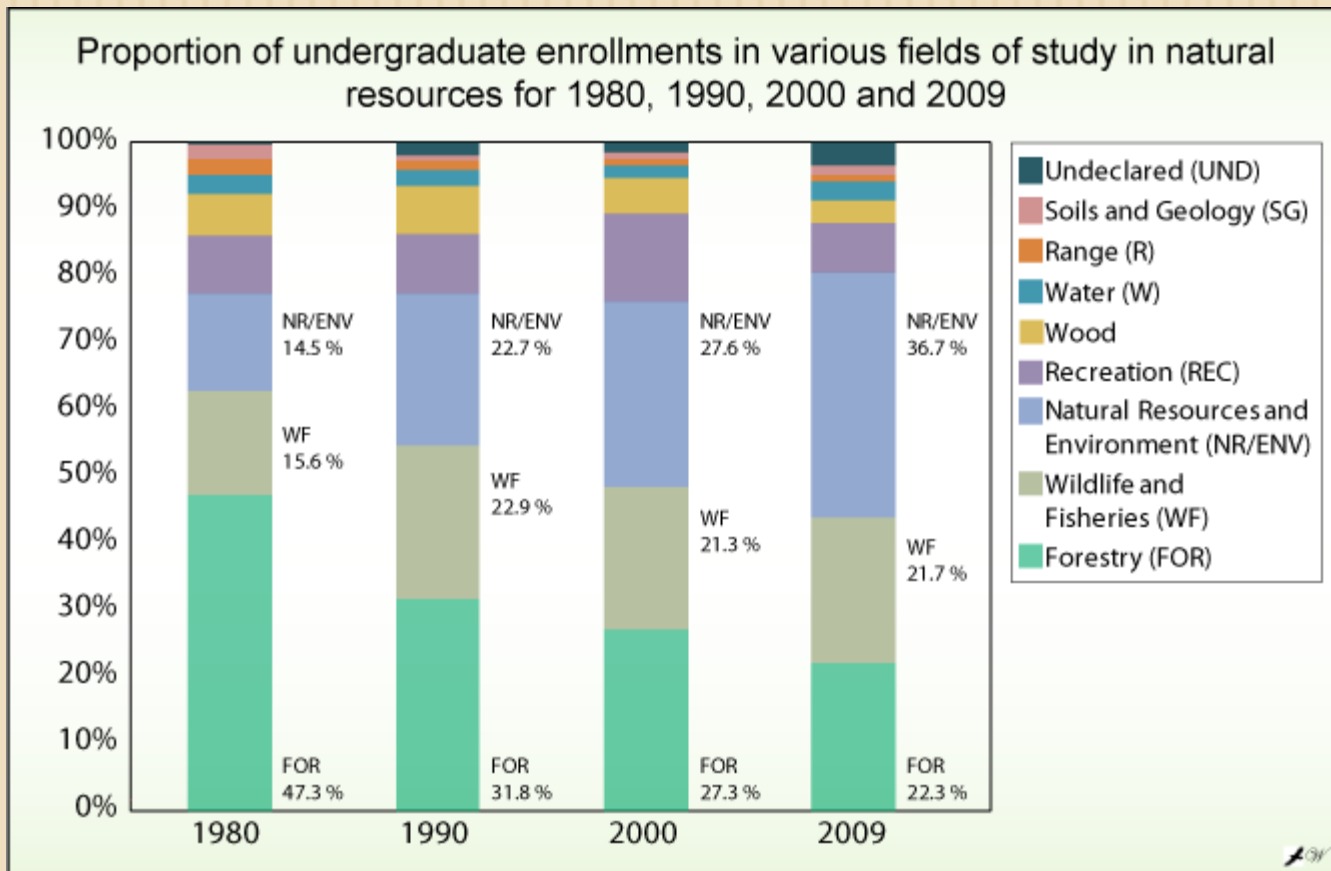
- “Natural Resources & Environment” eclipsing more traditional programs



Undergraduate Enrollments in Low-enrollment Fields, NAUFRP Institutions, 1980-2009



Proportion of Undergraduate Enrollments by Field of Study



Degree Classifications

- **Forestry** (forestry, forest science, forest ecosystem science, forest resources, forest management, urban forestry, forest engineering/operations, fire, horticulture)
- **Wood Science/Products** (wood science, wood products, wood technology, forest products, paper science)
- **Fisheries & Wildlife**
- **Recreation** (recreation, tourism, parks, interpretation, communications)
- **Watershed Science/Management** (watershed science, watershed management, hydrology)
- **Range Science/Management** (range science, range management, rangeland resources)
- **Natural Resources/Environmental Management** (natural resources management; planning, policy, and economics; environmental management and science; environmental conservation; environmental studies; conservation management; conservation biology; restoration ecology/management; applied ecology; geography, interdisciplinary)
- **Soils & Geology**
- **Other** (landscape architecture, GIS, land surveying, spatial science, biotechnology, human dimensions, construction management)
- **Undeclared**

Range & Frequency of Natural Resources/Environment Degree Names at NAUFRP Institutions (B.S. & Masters), March 2010

Natural Resources/Management/Studies

Natural Resources (17)

Natural Resources Management (7)

Natural Resources Ecology & Management (1)

Natural Resources Science & Management (1)

Natural Resources Development (1)

Natural Resource Studies (1)

Natural Resources Stewardship (1)

Natural Resources & Environment

Natural Resources & Environmental Management (1)

Natural Resources & Environmental Science (1)

Environmental Resource Management (1)

Environmental & Natural Resources (1)

Environmental Science & Resource Management (1)

Environmental Science/Management/Studies (34)

Natural Resources & Conservation

Natural Resources Conservation (1)

Natural Resources Conservation & Management (1)

Resource Conservation (2)

Resource Conservation & Restoration Ecology (1)

Conservation & Resource Studies (1)

Conservation & Environment

Forest Conservation & Environmental Studies (1)

Environmental Conservation Studies (1)

Ecology & Environment/Natural Resources/Conservation

Applied Ecology & Environmental Studies (1)

Conservation & Restoration Ecology (1)

Ecosystems

Ecosystem Management (1)

Terrestrial Ecosystems (1)

Forest Ecosystem Science & Conservation (1)

Ecosystem Science (1)

Possible Reasons for 1996-2005 Decline in Natural Resource Enrollments

1. Weak & uncertain job market
2. Low salaries compared to other professions
3. Increasing “disconnect” between natural resources & an urbanizing society (especially among young adults)
4. Tendency of minorities to avoid academic programs perceived as tangential to important issues affecting their communities
5. Negative public perceptions of forestry & related natural resource professions
6. Perception of curricula being too narrow & rigid
7. Increased “science phobia” on the part of students
8. Increasing number of similar degree programs outside colleges of forestry & natural resources
9. Relatively long period beyond a B.S. degree needed to obtain a terminal professional degree
10. Lack of intellectual leadership & charisma nationally in forestry & related natural resources areas
11. Limited public awareness regarding social benefits of forestry & related natural resource professions
12. Decreasing enrollments in colleges & universities overall (Sharik et al. 2004, Sharik 2005)

Surveys of undergraduate forestry students lend some support for hypotheses 1, 2, 5, 7 & 11 (Sharik & Frisk 2008, 2010).

Reasons for Especially Sharp Declines in Forestry Enrollments

- Diversification of degree offerings in Natural Resources Colleges due to:
 - Changing public values towards forests (shift from utilitarian/economic view, to a broader array of ecosystem values) (Xu & Bengston 1991, MEA 2005)
 - Association of forestry with the utilitarian/economic perspective (Wellman 1987, Luckert 2006, Sharik & Frisk 2008 and 2010)
 - Inflexible curricula bound by accreditation standards compared to other natural resource fields
 - Declining harvest levels on National Forests – a resource typically managed by foresters

Negative Image of Forestry a Global Issue*

- USA: “Low gender diversity in the workforce and concerns over a negative public image of forestry were also cited as sources of hesitancy (by forestry majors) to matriculating in a forestry program” (Sharik 2008).
- CANADA: “...the forestry schools will join forces with the broader forestry community to enhance the image of the forest sector and the forestry profession” (Smith 2008).
- ASIA PACIFIC: “.....there is a renewed interest from (forestry) professionals seeking to move to a career which is more environmentally oriented or directed to the public good.....” (Kennan and Kanowski 2008).
- LATIN AMERICA: “The academic improvement of the forest professional, and his image in the society, constitutes one of the greatest challenges of RELAFOR.” (Latin American Forestry Education Network) (Encinas 2008)

*Quotations from presentations given at the First International Conference on Forestry Education, Beijing, China, December 7-11, 2008.

Society of American Foresters Task Force (2009-2111)

□ Objective:

- Consider the merits of an SAF accreditation program for educational programs in Terrestrial Ecology

□ Results to Date:

- Narrowed scope from “Terrestrial Ecology” to “Terrestrial Ecosystem Management” and in turn to “Forest Ecosystem Management”
- Alternatives to developing new areas of accreditation in addition to Forestry include:
 - Relabeling and restructuring the current standards in Forestry to reflect SAF’s central role in the management of forest ecosystems

NAUFRP Education Committee (2009-2010)

- Tasked with:
 - “Preparing Forestry and Natural Resources Leaders in an Era of Change”
 - Developing a strategic plan for enhancing undergraduate education in natural resources
- Results to Date
 - Currently synthesizing **best practices** and **innovative ideas** in natural resources education
 - Sources include: literature, workshops/conferences, and faculty in member institutions

NAUFRP Education Committee (2009-2010)

Continued

- Subject areas selected to date:
 - Recruitment
 - Curriculum development and implementation
 - Use of geospatial and other new technologies
 - Experiential Learning
 - Certificates of specialization
 - Inter-institutional distance learning
 - Outcomes assessment
 - Rebranding and restructuring our programs within the context of the modern university and changing societal values

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Acknowledgements

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