

OPINIONES

**The decline in forestry education enrollment – Some observations and opinions**

La disminución de la matrícula en educación forestal - algunas observaciones y opiniones

**Ralph D Nyland**

SUNY College of Environmental Science and Forestry, Department of Forest and Natural Resources Management,  
Syracuse, NY13210, USA, phone: 315-470-6574, rnyland@syr.edu

SUMMARY

Forestry enrollment in North America reached peak levels of the 1970's, and colleges expanded their programs to fill a perceived need. Then numbers of college-age young people began to decline in the 80's, as has an interest in forestry, leaving unfilled capacity in forestry colleges across the United States. Environmental science, biology, and policy studies seem more attractive to young people today. Yet broadening forestry curricula into natural resources management programs incorporating these fields of study, and substituting more policy and social sciences for some traditional forestry courses, has not reversed the trend. Neither has an easing of the requirements for graduation. Perhaps the slide in forestry school enrollment mirrors the declining reputation of forestry in general. A reversal may depend on a major shift in attitudes of society about the importance of forests and the people who manage them.

*Key words:* forestry enrollment, forestry schools, forestry curricula.

RESUMEN

El ingreso a ingeniería forestal (forestería) en Norteamérica alcanzó su máximo en los 70 y las escuelas expandieron sus programas para satisfacer una necesidad percibida. Luego, el número de personas jóvenes en edad universitaria disminuyó en los 80, así como el interés en el tema forestal, dejando cupos sin llenar en escuelas forestales a través de los Estados Unidos. Las ciencias ambientales, la biología y los estudios de política parecen más atractivos para los jóvenes hoy. Sin embargo, la apertura de currícula forestales hacia programas en manejo de recursos naturales que incorporan las áreas de estudio mencionadas, y que sustituyen algunos cursos de forestería tradicional por cursos de política y ciencias sociales, no han logrado revertir la tendencia. Probablemente la caída en los ingresos a escuelas forestales refleja la decreciente reputación de la profesión forestal en general. Una reversión de esta tendencia puede depender de un cambio mayor en las actitudes de la sociedad en relación a la importancia de los bosques y de la gente que los maneja.

*Palabras clave:* ingeniería forestal, escuelas forestales, currículo forestal.

ENROLLMENTS DECLINED AFTER THE 70's

Though forestry school enrollment has declined steadily for the past decade, college administrators and faculty seem to lack insight to the real causes, or how to address the issue. Lower enrollment has become common throughout United States, as well as in many other countries. So has membership in the Society of American Foresters, our primary professional forestry organization. Some feel that a general decline of forestry, with shrinking enrollment in forestry colleges just reflects one symptom of something much broader in scope.

For us at SUNY-ESF, peak enrollment came in the mid- to late-70's. In fact, in those days we limited forestry classes (all starting as juniors at the time) to 120 students, and had no difficulty getting that number without adver-

tising our programs. Our Ranger School had as many as 90 additional students in technician training during that era. In fact, forestry education seemed so popular that colleges throughout the US expanded their programs and others started new schools of forestry ... though the latter group did not necessarily offer professionally accredited programs of study. Technician training increased as well. Some universities also introduced curricula in general environmental studies or environmental sciences, and included forestry-like courses in their offerings. At the time, forestry was likely one of the few "technical" opportunities that many young people saw for acting out their commitment to the developing environmental movement. And almost every program offering forestry courses seemed to flourish well into the late 1980's.

## THEN THINGS CHANGED

We had strong population growth in those years, or at least strong increases of individuals reaching an age to attend college. Further, across the US, society wanted to open college enrollment to almost anyone with at least minimum qualifications. People felt that a college degree would guarantee long-term success ... a higher paying job, and a good life. Natural resources careers, including forestry, also offered opportunities for young people to get involved with environmental issues that newspapers, magazines, and television had publicized so attractively. All of this likely contributed to the increased enrollment, expansion of college facilities, multiplication of 2-year community colleges offering diverse curricula, duplication of programs already established at other institutions, and an increase of spending for higher education.

More recently, numbers of college-age individuals has decreased, putting pressure on both universities and colleges to sustain their enrollments. Some 2-year institutions decided that by becoming 4-year colleges they could hold many students for additional studies, thereby maintaining or increasing total enrollment. It requires little investment in additional facilities, and gives those colleges an opportunity to more fully use the "excess" capacity that they developed during the boom years. Here in New York, this happened with two institutions that previously offered courses in pre-professional forestry education or technician training. And even though many of these newly expanded colleges offer only non-accredited forestry programs (even of marginal quality), many students have opted to stay for the upper division part of their college education. That has reduced somewhat the numbers transferring into well-established forestry schools to finish their professional education.

Aside from this development, many high school graduates became more interested in entering fields/work opportunities that pay lots of money and would support a grander life style. So business, finance, engineering, computer science, and programs like them began to flourish. In addition, many young people who might have entered forestry programs in the past seemed more interested in general environmental studies instead, and ones dealing with biology and ecology. This may reflect growing interest by society in global health and natural science, probably fostered by magnificently presented television programs that brought vivid images of the world's natural marvels into living rooms across the country, and that promoted resource conservation and preservation in compelling ways. Forestry does not get that attention, or stories about it often have an unflattering message.

Perhaps this glamorization of natural history made ecology and biological science seem more honorable or more exciting than forestry, or at least more appealing to people interested in using science to attack the most recently publicized environmental crisis (real or not) and wanting to protect our planet for future generations. For others

less attracted to natural sciences, the environmental studies programs with their focus on policy, planning, and economics may have seemed appropriate in preparing to attack pollution, global warming, water quality, biodiversity, deforestation, and other commonly perceived crisis issues of the day. Policy people may encourage this by holding up political action as the key means for overturning the ways that society harms our environment.

In addition to these shifts, environmental groups made considerable headway during the past 15-20 years in convincing people that cutting trees leads to forest destruction or degradation, that allowing access into a forest for multiple uses harms the environment, and that forestry does not differ from past practices of the timber barons who pillaged our forests for pure profit. In part, this pressure may have encouraged companies to look off continent for new suppliers of wood, finding it at a lower cost that enhanced their profit margins. Forest industry and investment companies also have not adequately addressed the negative image of their activities by the quality of their on-the-ground practices in our natural forests, or by a willingness to adopt new approaches to forest resources management and use. Commonly, they view change as threatening profits to stockholders. And that makes change unacceptable. In fact, forestry has increasingly become a process of finding, putting a value on, and extracting salable timber at the lowest cost. And we have become quite good at doing these things, even using technical innovations to make timber acquisition and harvesting more effective and more efficient. At the same time we have done little to help people see that forestry is really a process for enhancing forested environments to serve the broad needs of society ... or convincing them that foresters are really good-minded professionals who have essential skills and knowledge to address the full range of forest-related issues that people consider important to the future of our world. Altogether, many young people seem to perceive forestry as an unattractive profession, particularly for addressing environmental matters that society considers important.

## SOME SHIFTS IN PROGRAM ORIENTATION

Most likely, more than these factors lie at the heart of the recent declines of forestry education. They simply represent some obvious ones. But coincident with an increase of environmental awareness, and during times when many environmental groups have worked hard to curtail timber harvesting on our continent, we have seen former forestry programs converted into ones offering general environmental studies, those focusing on ecosystem sciences, and programs catering to policy issues. Some development also has occurred in disciplines that promote non-commodity uses of forests ... such as recreation, watershed management, and enhancing the habitat for wildlife. We call them

programs of Natural Resources Management, or something like that. But that has not really increased enrollment in forestry colleges, *per se*.

One other change likely affected professional-level forestry education. During the 70's, economists and social scientists became the main group of people serving as department chairs and program leaders in forestry schools. Some worked actively to emphasize policy studies. Others wanted to prepare graduates for responsibilities in mid- and upper-level management positions (perhaps encouraged by the huge growth in business management programs at the time). Also, they argued that to practice the "new forestry", graduates would need enhanced communication and political skills (people skills), and less preparation in disciplines aimed at actually managing the resources (e.g., measurements, forest regulation and finance, silviculture, wildlife management, and the like), or the bio-physical foundations for forestry practice (e.g., forest ecology, silvics, pathology, meteorology, and the like). At least some of the new leaders also argued that technicians should do those things, while graduates of the professional schools would manage programs, people, and budgets. In addition, many colleges decided to increase their stature as research centers, and that further moved education away from a tradition of preparing graduates to become practicing foresters, and toward getting them ready to attend graduate schools and to do research. And with decreased funding available for forestry research, some of those programs also shifted toward fields of study more directly related to the hot-button research topics of the day.

These transformations ignore one important reality: most forestry graduates who do not gravitate toward research also do not start their careers in middle management positions with sit-behind-the-desk kinds of decision-making functions. Instead, most begin working in the forest, responsible for activities that forestry schools have importantly deemphasized. That seems common as well for graduates from wildlife, water, recreation, and ecology programs. So it challenges us to ask if an emphasis on policy, middle management, and research diminishes our capabilities to wisely manage the forests in our trust. And we need to wonder if these changes actually make forestry programs less attractive to young people who want to work in the forest, directly managing its resources in a sustainable manner. Further, with forestry getting criticized in the popular media (newspapers, radio, and TV) as exploitative in nature for involving itself with tree cutting, perhaps idealistic-minded students will find studies in natural sciences and environmental studies more supportive of their interests.

#### AN ADVENTURE WITH UNCERTAINTY

Some argue that forestry colleges can adapt by modifying their graduation requirements. We saw an early example of this curriculum adjustment in some of the New England

states. Years ago a few colleges concluded that traditional forestry based on growing wood products has little relevance in an increasingly urbanized region (where many people purchase forest land as sites to build a house). So they shifted their emphasis onto "urbanized forestry" –or more precisely "suburban forestry"– hoping to make their program more attractive to local students. They merged forestry with wildlife management, reduced their forestry offerings, and brought in other associated disciplines as substitutes (creating a type of natural resources management curriculum). And while numbers of students have not necessarily increased as a result, enrollment may have stabilized due to the shift of emphasis. Perhaps that experience encouraged a more widespread movement among schools of forestry to transform themselves into programs of natural resources management, with professional forestry receiving decreased emphasis or none at all.

Here at SUNY-ESF we tried to make recreation and water resources studies into stand-alone programs that required only minimal preparation in the traditional aspects of forestry. But that did not attract new students to compensate for the decline of enrollment in the Forest Resources Management program (the current title for our forestry curriculum). We also saw a drop in the dual forestry-biology degree program, where the curriculum satisfied graduation requirements for degrees in both forestry and some aspect of forest biology. Students apparently opted for studies more focused on just wildlife science and some other aspect of biology. Even replacing the dual-major program with one emphasizing forest ecosystem science and applications has not reversed the trend, despite its promise of opening many exciting career opportunities for the graduates.

Like other colleges, we even packaged some disciplines peripherally associated with forestry into a new program called Natural Resources Management ... as distinct from Forest Resources Management. The title suggests that students will not become foresters, and that we have the expertise to help them work with natural resources well beyond those related to trees or even forests. Like the water resources and recreation options, it reduces forestry course requirements to a minimum, and shunts students more into survey type rather than professional-level courses (e.g., a single course in forest ecology and silviculture combined, rather than requiring separate courses in those disciplines). It also increases the emphasis on policy studies, hoping that students will see it as an alternative to doing general environmental studies at another institution. So far the new curriculum has not attracted large numbers of new students to the Department. However, it has encouraged some to shift their enrollment from Forest Resources Management (forestry) to this alternate program.

Some colleagues also thought that we might gain by attracting recent college graduates to a Master of Professional Studies or Master of Forestry degree. The former provides flexibility in selecting graduate-level

courses, but does not require thesis research. It allows students to do advanced studies in some aspect of forest or natural resources management and science, and does not require a background in forestry. The more recently developed Master of Forestry program allows graduates from outside forestry to earn a fully accredited professional forestry degree. It serves students who develop an interest in forestry while working in another undergraduate curriculum. Time will tell if these masters-level programs attract sufficient new students to compensate for recent declines in undergraduate enrollment.

Our administration felt that we could increase enrollment in still another way. It allowed students to substitute many courses from a technician training program for ones required with our accredited professional forestry degree. It starts with basic college courses (general education courses), followed by one year of technician training at our Ranger School, followed by two years in the Forest Resources Management program at Syracuse. Thus, SUNY-ESF calls it the 1+1+2 forestry program. To make it attractive, SUNY-ESF now gives credit for technician-level training in dendrology, measurements, protection, forest ecology, silviculture, and 18 other credit hours of professional-level education. That has attracted some students, but not boosted enrollments at either the Ranger School or in forestry at SUNY-ESF. In addition, many of the 1+1+2 students tend to take no more elective credits than the required minimum, thereby leading to smaller classes in some professional offerings. Thus, our policy of accepting survey-type courses as satisfactory for a Natural Resources Management degree, and technician training as adequate in the 1+1+2 curriculum, reduced enrollment in several professional forestry courses.

That change had two side effects. First, a drop in course enrollments causes administrative inefficiency. For example, our professional-level silviculture course now has only 12-14 undergraduates each fall (down from 40-50 during the early to mid 1990's, and less than half the number enrolled prior to instituting the 1+1+2 degree in 2000). It also means that fewer students have adequate preparation for an advanced silviculture course, compounding the effects of declining class size. That makes continued budget support harder to justify, and essential administrative services more difficult to maintain. Second, like some other colleges, we now graduate many from our Forest Resources Management program with only introductory-level studies in some key disciplines of forestry, leaving them less prepared for professional responsibilities. In addition, when Natural Resources Management students lacking a full compliment of baccalaureate-level forestry courses cannot find other kinds of work, they often look for forestry jobs after graduation. In effect, accommodations of the kinds

we made to boost enrollment by changing curriculum requirements dilute the strength of a forestry program, and result in more graduates with limited preparation in problem-solving and the bio-physical sciences so essential to professional forestry practice. Perhaps that will reduce the effectiveness of many who want to work with forest resources management. Perhaps it will affect the quality and reputation of forestry as well.

## SO WHAT IS NEXT

All of this may simply underscore the uncertainty about declining forestry enrollment in many countries, and of the potential long-term consequences. Schools of forestry in North America have not found an answer, and the things they tried to date have not boosted enrollments. Some forestry schools hope to survive longer than many of the weaker programs, with enrollment at least stabilizing as potential students find fewer places to study in forestry. But that may not happen. Instead, young people may just opt for a different career.

Perhaps a resurgence of forestry awaits a major change in attitudes of society about forests. Perhaps the forestry community must also change by giving primary attention to managing and sustaining key resources (rather than seeing its business as primarily cutting timber), and to viewing commodities as the byproducts of appropriate management to insure long-term ecological integrity and sustained access to the benefits of forests. Yet people's obsession with maximizing short-term returns on investments has pushed forest industry and investment companies in a different direction. Perhaps society must come to recognize the contradiction of its divergent interests: One wanting more direct action to save the environment, while another demands a quick and large payoff to maximize short-term gains from the land.

I do not foresee a magical reversal in declining enrollments. Nor does the evidence from other colleges suggest that they found an answer either. Even the most vibrant forestry programs in North America are making changes. They were historically located in regions with economies linked on a strong forest products industry, and a dependence on both public and private lands as sources of marketable commodities. But those economies have faltered during the past decade as the forest products industry declined across the country. Perhaps in the final analysis, schools of forestry will survive where forestry promises tangible benefits to people of the region, or where society views active forestry as the best means to insure a sustainable environment for future generations. Perhaps a new perception of that kind will ultimately help to keep forestry alive.

Recibido: 29.11.07  
Aceptado: 27.12.07