

Perspectives, Trends, and Forestry Opportunities

Calvin F. Bey ¹

Abstract: It is clear that our perspective, profession, society and approach to natural resource management has changed a lot over the last century and particularly over the last 30 years. We have adjusted to many changes and will be challenged to adjust to many more in the future. Understanding the global environmental perspective and expected trends should help us as we deal with the implications of change in our research and management positions. The trends for increased use of multidisciplinary approaches, concern for ecological management, global involvement, attention to risk assessment, and the use of science in establishing policy will make for an exciting professional future. A talented, professional diverse workforce, with a passion for solving problems, serving people, producing resources, and caring for the environment will be needed to meet the challenges.

INTRODUCTION

Thank you for the invitation to participate in this 9th Central Hardwood Forest Conference. I'm pleased to be here to share a few thoughts--hopefully pertinent to you as managers, specialists and researchers in the Central Hardwood region. It's good to be in the Midwest and on a University campus. Some familiar faces in the audience bring back pleasant memories of my past work in this region.

I'd like to share a few ideas with you about changes in natural resource management that seem to be on the horizon. I will discuss the implications of change for natural resource management and research, and hopefully present some clear challenges to you--for now and in the future.

I would like to begin with a quote that is pertinent to a major point that I want to make today. A New York City Commissioner said it this way, "The environment is no longer an environmental issue." He went on to explain how environmental issues are completely intertwined with the whole fabric of society. In a similar way, I see natural resource management and research intertwined with the political, social, economic, ethics, and science issues of today. These major issues are critical and central to our quality of life and the sustainability and health of the planet Earth. As natural resource professionals, we have a key role in addressing the science problems and in serving a special set of societal needs.

USING DIFFERENT PERSPECTIVES

Perhaps you, like me, have climbed a firetower or two in years past. I remember that experience as physically exhilarating, topped off with a magnificent view, looking further out than ever possible from the ground. From each step along the climb to the top there was a slightly different view, a different perspective. You don't have to climb firetowers to recognize this, but I believe in our jobs that it is important to listen and reflect on different perspectives from time to time. Do those different perspectives cause us to see things from a different point of view, question old or current operational practices or even examine the principles we learned in school? I hope so. I like to think that examining different perspectives is part of our continuing education process.

¹Staff Assistant, Forest Management Research, USDA Forest Service, Box 96090, Washington DC 20090-6090.

Malcolm S. Forbes said, "Education's purpose is to replace an empty mind with an open one." If we use that definition of education, then examining different perspectives should be a routine practice. Oliver Wendell Holmes, stated it a little differently: "The human mind, once stretched to a new idea, never goes back to its original dimensions." New perspectives, like new ideas, can cause us to change.

I'm sure that in studying and managing hardwoods, we all want to see progress. In a broad context, just what does "progress" mean? Rosabeth Moss Kanter said "the art of progress is to preserve order amid change, and change amid order." That challenge of striking a balance between preserving order and adjusting to change has been central to our forestry profession in America for a long time.

WHERE HAVE ALL THE CHANGES BEEN

What are the significant changes that have taken place in forestry in America over the past century? Perhaps some understanding and appreciation of the past can provide us with some insights as we prepare for the future.

How have we changed our perspective concerning the purpose and value of forests? For convenience, I would like to break the past century into three phases: (1) exploitation (up to 1930); (2) protection (1930-60); and (3) management (1960 to present). In phase 1, forests were viewed as obstacles to agriculture; as a primary source of material for fences, bridges, railroads and charcoal and often disposed of by burning. Around 1930 we moved to an era of protection, phase 2. In those 30 or so "protection" years, we reduced wildfire burns by a factor of 10. We initiated forest management practices and restored a lot of the cut-over and burned-over lands, especially in the East. Timber production was considered to be the primary purpose of forest lands. In phase 3, roughly the past 30 years, we accepted forest land as the producer of many goods and services. The forest became the provider of many resources--timber, water, wildlife, fisheries, recreation, minerals, etc. It appears that we are now moving into a new era, where forest values and land stewardships are central themes. What the forest "is" and the condition of the forest gets equal consideration with what the forest produces. Only time will reveal how this theme plays out.

Along with the changes concerning the purpose and value of forests, management and research on forest lands became much more diverse and complex. These are significant shifts and ones that some other resource-oriented professionals (e.g. oil, coal, and gas producers) have not had to adjust to in such a major way over the years. At the very least, these shifts in how we view and use our forests have improved our ability to adjust to change and made for interesting debates within the profession.

What about changes in our forestry profession? It's gone from primarily foresters to a broad mix of natural resource, social, and other specialists. It's adopted a land ethic that "requires" members to advocate and practice land management consistent with ecologically sound principles. We have moved to become much more involved in the international arena, and we wrestled with issues on licensing, professional education qualifications, and even the question of what constitutes our profession.

What are the changes in our approach to natural resource management? Think for a minute how we did it historically. In the past, professionals were educated and expected to know what was best for the land, best for the mankind, and how to balance the two. Sometime during the 1960-70's, society decided it was appropriate to speak out on how the environment was managed or mismanaged. There were lots of milestones in this time period, e.g. the first Earth Day, the Multiple Use Act, the Wilderness Act, the Land and Water Conservation Fund Act, the Historic

Preservation Act, the National Environmental Policy Act, the Endangered Species Act, and the National Forest Management Act—to name just a few. We addressed other issues dealing with fish, wildlife, clean water, wild horses and burros, insecticides, rodenticides, fungicides, resource planning, clean air, etc. That public involvement movement has grown to a point where forest managers now seriously consider what land management practices the public will and won't accept. That public (individuals, interest groups, Congressional representatives, etc.) are not bashful about expressing opinions that go beyond State and National Forest boundaries.

Within our profession we have welcomed and promoted public involvement and participatory management. We have placed greater emphasis on human values, as well as land and resource protection and restoration. Listen to the titles of three books reviewed in the January 1993 Journal of Forestry. They are "Balancing Act: Environmental Issues in Forestry," "Global Imperative: Harmonizing Culture and Nature," "On Common Ground: Managing Human-Planet Relationships." Our profession was not involved in reading and reviewing those kinds of books 10 or 15 years ago. These three examples demonstrate the kinds of changes that are occurring.

Have there been changes in society? Of course. In fact, they are the primary drivers in the other changes. We have more people. They are more concentrated in cities and they have a higher standard of living. We have developed into a luxury-laden American society that increasingly places higher and higher values on natural resource protection and restoration. That luxury and those values prompts conflicts and challenges--as a rule it's utilization versus preservation debates.

It is clear that our perspective, our profession, our approach to natural resource management and our society has changed a lot during the last century and particularly over the last 30 years. We could debate whether the glass is half empty or half full, but I think that we have adjusted to the major changes fairly well. I suggest that one measure of successful adjustment is the fact that there has been a continued need by the customers for our services. Certainly some of you have had some pain caused by these adjustments and I would not pretend that it has been an easy road. Nor would I say that the road ahead is without its dangerous curves and icy spots.

I expect that we will see even more changes in the future. The question of balance will not diminish. Amid all the changes, how can we preserve order? We need some stability. We can't afford to start over with every new idea. Throwing out the good with the bad is an expensive way to operate. Let me recommend one idea that might be useful. I believe that it will be easier to run our organizations if it is clear to everyone in the organization which major items are and are not negotiable for change. This can be done by establishing and adhering to the mission, vision, goals, and principles of operation which are at the core of the organization. This should help to provide a work environment that gives a sense of stability.

THE LARGER PERSPECTIVE

I expect that some of you would argue that we and society have gone too far in public involvement--that the professional can no longer do his/her job, that work efficiency is greatly reduced, and that the protectionism movement is wildly out of control. Some others would likely argue that we have been far too slow in adjusting to change—that we are not listening to what the public wants us to do. Where do we draw the line for public involvement and participatory management involving decisions about how our natural resources are used, restored, and protected?

Lets digress and take a world perspective peek on what is happening to the environment. I refer you to *Our Common Future*, A United Nations Commission on Environment and Development report on the status of the world. The Report is often quoted with regards to the topic of sustainable development—meeting the needs of the present without compromising the ability of future generations to meet their own need. Here is a statement from this 1983 report: “*Our Common Future* serves notice that the time has come for a marriage of economy and ecology, so that governments and their people can take responsibility not just for environmental damage, but for the politics that cause the damage. Some of these policies threaten the survival of the human race. They can be changed. But we must act now.” This report is a serious request for us to look at environmental and development problems beyond local, state, and national borders.

I refer you also to *State of the World 1993*, published by Worldwatch Institute, another international group concerned about getting a sense of the condition of the world's environment. Here are a couple summary statements for perspective: “Today environmental degradation is directly affecting national and global economic trends.” “Soil erosion, thinning of the ozone shield, air pollution, and increased flooding caused by deforestation are all taking their toll. Rangelands and oceans are being pushed to their limits, and their productivity is beginning to fall.” Here is another call to understand our problems within the international framework, the larger perspective.

How do Americans feel about the environmental issues? The Times-Mirror Magazine National Environmental Forum Survey, completed in March, 1992, reports that 30 percent of Americans think of themselves as “active environmentalists” and another 52 percent say they are “sympathetic” to environmental concerns. Nearly two-thirds think environmental laws and regulations have not gone far enough. When faced with a choice, two-thirds come down on the side of the environment rather than economic growth. Perhaps most surprising, Americans are split evenly on the assertion by the World Watch Institute that the 1990's is the last decade when humanity will have a chance to save the Earth from environmental catastrophe. Whether it is true or not that we are on the brink of environmental disaster, it is important that we as natural resource managers and researchers understand how the public perceives the issues.

Do ideas and statements that I have just presented have anything to do with management and research in the Central Hardwood region? I would say “yes.” In a very real sense the global environmental issues shape our ideologies, our programs, and our priorities. And if nothing else, they help us to understand why people want to be involved in land management decisions. It seems like we in forestry are caught in the middle. Art Smyth, President of the Society of American Foresters during 1990, said it very well in the 1993 issue of the *Journal of Forestry*, “I think I speak for all the foresters of my generation when I say that the last few years have seen our forestry world “turned upside down.” Art hastens to add, and I agree, these are exciting times; we have much to learn; we have made some mistakes in our past; but we haven't fallen off the earth. As I read Art's message I hear him calling for progress--preserving order amid change and changing amid order.

TRENDS FOR THE FUTURE

I am sure that you can see many problems to be addressed. You know the scientific questions, and I assume that your agenda provides a sense of current priorities for Central Hardwoods. I see a lot of historic and current topics on the list. This may be most appropriate, but hopefully, some of your efforts are addressing topics that are oriented toward the issues of the future.

In general, the following trends seem to be the major drivers from which all pressures on natural resource use and protection originate:

- (1) Population increases and changing demographics will put more pressure on the use of all natural resources;

(2) There will be increasing public pressure for protection and restoration of natural resources and the environment; and

(3) Global concerns, involvement, and cooperation will increase.

Within this larger context, what are the natural resource and forest management trends? I believe that we will see increased attention given to ecological understanding, longer rotations, larger landscapes, new uses and new values for the land and natural resources, and special emphasis given to the condition of the resources. Regarding the condition of the resources, there will be increased emphasis on forest health and sustainability. We will hear a lot about ecosystems and ecosystem sustainability. By ecosystem sustainability I mean, the ability of the system to maintain biological diversity, resiliency to stress, and a capacity for renewal over time, while providing a flow of products or benefits that meet current or future human needs.

The emphasis described above are now embodied in the USDA Forest Service, National Forest System philosophy for forest and range management. In that philosophy, it is referred to as Ecosystem Management. In the National Forest System there are additional components of Ecosystem Management that deal with the operational aspects of the philosophy. These include choosing a desired future condition, looking at past conditions, examining natural system options, public involvement, partnerships, and guidelines for clearcutting. It's a philosophy that includes the human and economic components, commodity production, and protection. The dilemma of balancing production and protection still exist. An increasingly difficult challenge is the balancing of current production needs with the long-term desired future condition of the resource. Natural resource management of the future promises to be exciting.

IMPLICATIONS FOR MANAGEMENT AND RESEARCH

With those ideas on the history, perspective, and trends in mind, I suggest there are some significant implications for future management and research. For forest managers, I see the assignments becoming increasingly complex. There will be a need for highly educated and skilled managers. The ability to fit together all the pieces of the resources will require someone with strong analytical and synthesizing abilities. Managers will need to be visionary, take a broad perspective, and be problem solvers. Natural resource education will be important, as will the ability to understand complex ecological processes. Is that asking too much for managers? I hope not. They will be making long-term decisions that impact the land, influence resource availability of the future, and effect people's lives.

There will be an increased need for specialists, who can assist the managers. Specialist of many types will be needed to understand the function and structure of the broader ecosystem. Specialists will be needed to understand scale relationships—how do we scale-up from our understanding of organisms, to stands, populations, watersheds, and landscapes. We will need a lot more than just wildlife, fisheries, soils, and recreation resource specialists. How about microbiologists, population geneticists, insect ecologist, and modelers for starters. Although emphasis will need to be on the multidisciplinary approach, the need for specialists will increase.

Should there be any changes in how we view professional development in preparing for the future? I suggest that managers and specialists will need to stay in one location for longer periods of time—to better understand the problems and to observe how ecosystem processes unfold. Improved data bases, Geographic Information Systems, decision support systems and better ways to characterize risks will undoubtedly be available to display management options, but there will be no substitute for the intimate land/resource knowledge for understanding what is best for maintaining sustainability.

For researchers, I see a parallel track. We'll need a cadre of superb analytical people and synthesizers, who can bring together information from many independent studies. These researchers will need to be good at sorting out the priority research needs and in designing multidisciplinary studies that test some broad-scale hypotheses. I see these integrating type of studies as capstones after some of the specific, discipline-oriented research has been completed. This is an area that deserves special attention but should be approached with caution. Studies are likely to be large and consequently very expensive. Quality assurance for multidisciplinary type studies must be rigorous. If the questions asked and hypotheses being tested are mushy, so too will be the answers. Controls, replication, randomization, and the level of uncertainty tolerable in the answer should be thoroughly addressed.

Managing research programs will not get any easier. Demands for answers to complex practical problems will likely increase. There will be requests and temptations to get into research on the latest problem-of-the-month. In some cases, researchers will be asked to cooperate in demonstration projects and management trials. Its important that the researchers and managers make clear to each other their expectations of results for the projects being developed. The arena of quasi-scientific projects is fraught with dangers. Managers are prone to expect clear-cut and definitive answers to general questions. Researchers are prone to hedge on answers and want more specific testing. In these endeavors, managers and research need to "Beware."

There will be an increased desires to use science in establishing policies. Along these lines, some cautions are in order. While science should serve as the foundation for policymaking by establishing the expected results (options) and corresponding levels of risk, researchers must be alert to pressures for answers for research results with "correct" answers. It will be important to separate what is scientifically sound from what are research implications and expert opinions. While all may be useful in making management and policy decisions, and used as evidence in court, there are differences that should be made clear by researchers. I see an increasing need for quality assurance emphasis at all major research institutions. As researchers we need to be careful that we do not get in the policymaking game on the basis of science alone. Policy will generally deal with broad-based issues, where social, economic, and political factors are also involved.

Research planning will increase in importance. Whether you are in industry, university, federal, or nongovernment organizations it will serve you well to have a documented plan for research. It should be strategic in the sense that it contains a vision, broad goals, and be long-term in nature. The plan should be coordinated and complementary with goals of other organizations. Such plans should change with time as problems are solved and new needs arise. The plans should be widely shared with other professionals. In general, I see too few of these plans. I suspect it is because there are too few.

Technology transfer will increase in importance. I'm a great believer in sharing what we learn in research with others. My early experience in Forest Service research at Carbondale, Illinois, and working hand-in-hand with Burl Ashley in State and Private Forestry, was an excellent example of how to get our walnut genetics and culture research implemented. There was an excellent feedback loop on current problems and everyone, especially the customer, benefited. I see a need for increased efforts in this type of technology transfer.

Within the context of increased partnerships and technology transfer, I believe that research must adhere to a certain level of independence. Rigorous adherence to scientific operational principles and the independence to present results, even if it is not consistent with current policy, must be maintained. To do otherwise will be to destroy research credibility. There will also be a need to express research results through risk assessment processes.

Natural resource managers and researchers of the future in the Central Hardwood region, just like elsewhere, will need to give increased attention to education. Whether you call it continuing education or a life-long learning philosophy doesn't matter. Individuals without personal motivation, and/or a strong support organization will not serve society well. The society of the future will be different than it is today. Some in society will view the earth as an opportunity to explore and exploit the natural resources. Others will view the earth as the natural healer and provider that cares for us all. Most people will have views that are inbetween. It will be our responsibility to have the expertise that presents the options to serve them all.

Oprah Winfrey is quoted as saying, "when I look at the future, it's so bright it burns my eyes." I believe that the future for natural resource management and research will be bright. There will be problems in natural resource management but we will solve them. It will take a plethora of talented and diverse men and women from the crosscut of society. We will need people who are inspired, with a passion for solving problems, serving people, producing resources, and caring for the environment. I hope that all of you are working to develop that cadre of caretakers, managers, specialists, and researchers.

I would like to close with the same notion that I began. Perhaps we can learn from the New York City Commissioner who said "The environment is no longer an environmental issue." I say to you, natural resource management and research is no longer a natural resource nor even an environmental issue. Our issues are intertwined with the political, social, economic, ethics, and science issues of today. These are major issues, critical and central to our quality of life and the sustainability and health of the planet Earth. The fact that the issues are bigger than us does not diminish our role, it only means we must adjust to a broader perspective. As natural resource professionals, our role is key. I trust that we are all committed to adjusting to that broad perspective and to serving those special needs of society. That is indeed a noble charge.