1977: Southern Forestry in Practice and Politics

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SOUTHERN FORESTRY IN PRACTICE AND POLITICS
26TH ANNUAL
FORESTRY SYMPOSIUM

SOUTHERN FORESTRY IN PRACTICE AND POLITICS

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FOREWORD

Changes in the practice of southern forestry are occurring rapidly. In the past few years the practice of forestry has come under the constraints of a number of federal and state laws which limit the management and use of the southern forests.

The 26th Annual Forestry Symposium dealt with current forest management practices by federal, state, and private organizations, and the effects of recent legislation and environmental constraints on southern forestry practices.

Part 1, moderated by Dr. Robert G. Merrifield, Department of Forest Sciences, Texas A&M University, was devoted to the practice of forestry as currently done by federal, state, and industrial organizations, and private consultants. General policies and procedures used by representatives of each of these four kinds of organizations were discussed.

The second part dealt with the influence on forestry practices of recent legislation and was moderated by Dr. Jay M. Hughes, U. S. Forest Service. Past and future influences of the National Forest Management Act of 1976, federal land-use planning legislation, state forestry practices acts, and OSHA regulations were pointed out and discussed by four speakers.

The final session (Part 3) involved the present and future effects of a number of new environmental constraints which apply to southern forestry. Dr. Benton H. Box, Southern Forest Institute, moderated this session, which included a discussion of the pressures from environmental organizations, among other topics.

We would like to acknowledge the contributions and expertise of each of the speaker-authors and moderators who participated in the Symposium. Appreciation is also warranted for the assistance in planning by Norwin E. Linnartz, Robert W. McDermid and Alden C. Main. Sincere gratitude is owed to Judith Hite for making the Symposium arrangements. Forestry graduate students Allan Ardoin, Andrew Ezell, and David Chabreck were instrumental in causing the Symposium to run smoothly and are to be commended.
Finally, special thanks go to Jennifer Achee for her expert typing and to Dr. Samuel S. Britt, Jr. for his assistance in preparing the manuscript for printing.

Paul Y. Burns

John R. Toliver
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26TH ANNUAL
FORESTRY SYMPOSIUM
PART I CURRENT FORESTRY PRACTICE
Southern forest management has changed significantly during the past 10 to 20 years. For the most part, I think this change has been good. This change was brought about by influences from within the forestry profession and influences from outside the profession. These influences have further led to changes in forest management mandated from the state and federal political arenas; these in turn have affected us all—state, federal, industry, and the small landowner.

This morning I will talk to you about current forest management trends on the National Forests as seen by a Forest Supervisor. In doing so I will briefly discuss some of these influences and changes I mentioned to show how they have affected our current management practices on the ground in the National Forests. Other speakers will examine with you current practices by the states, industry, and other private lands. I suspect that they, too, will be talking about change.

This afternoon, we will enter the state and federal political arenas and take a look at how these influences and changes are affecting all of us from that standpoint.

Let me preface my discussion of National Forest management practices with these statements:

1. Management of forest lands, whether they be public or private lands, is basically the same. Yet there are differences in the way we go about it. This is

\[1/\] This paper was presented by Mr. Finison.
because we have different objectives in managing National Forest, state, industry, and private lands.

2. Management of National Forest lands reflects long-term programs, public needs, and a balance of resource uses as directed by Congressional mandate. Some private lands may be managed for a single resource. This isn't to say that one is right and the other is wrong. We simply have different management objectives.

Now, let's take a look at today's management on the National Forests and some of the changes and influences which have brought us to this point. We need a starting place.

CUSTODIAL MANAGEMENT

In the not too distant past, management of the National Forests was largely custodial. This consisted of fire prevention, fire control, and some insect and disease control. In the East there was considerable land acquisition activity for a while on the various purchase units and some roads were built. Here in the South there was a large job of planting cutover and burned land. Thus, we became known locally as the "Reforest Service" instead of the Forest Service. The colloquialism still remains in many areas today. That was about the size of it back then. Our management was pretty much that of a custodial nature, or caretaker.

EXTENSIVE MANAGEMENT

The second forest grew on these lands, and we began to manage them on a rather extensive basis. World War II came along and there was a great demand for lumber. Much of this came from the National Forests. There was renewed recognition of the need for timber and that much of this could come from the National Forests. Congress passed the Sustained Yield Act in 1944, giving further emphasis to timber management, and we began to move from this extensive management position to a more intensive one. But it was primarily in one resource area—timber. Timber was king! And we made great strides in our timber management program. Selective cutting was the thing and we proceeded with the job at hand. Yes, fire control, some planting, and the other things incidental to the custodial days were still around. There was even recreation in the form of some picnic areas and campgrounds the CCC boys built. But they were yet in-the-background incidentals. Timber was king! Things were in good hands, though, because in many cases there was one (only one) forester on the Ranger District, and foresters knew
all there was to know about how to manage forest lands. It didn't matter much how things looked esthetically or how timber activities were impacting other resource activities then. Besides, a forester could handle it.

**INTENSIVE RESOURCE MANAGEMENT**

But during this time some subtle changes were taking place. The war years had taken us out of the great depression, and the post-war boom continued for quite some time, only to be spurred by several brush-fire conflicts. On the whole, people didn't have to worry quite so much anymore as to where the very next meal was coming from. There was an exodus from the rural areas to the city and urban environments. The new "affluent society" left its rural orientation and ties to the land behind. The resulting new generation had practically no rural background or tie to the land. The urban affluent society with its better economic position brought about more change at a more rapid pace. We became better educated. We became more mobile. We had more money to spend. Technology made greater advances in just a few years than had taken place in decades before. Most of society's needs were being satisfied, but this new society was caught up in the crowded rush of the urban world and something was lacking. There seemed to be a yearning to return to the land.

The whole value system began to change. And man with his new affluence and mobility and leisure began to return at least on weekends, or holidays, or vacations. In a nutshell, this was the beginning of the environmental movement.

When man came, he liked some of the things he saw. Some, he didn't like and became very upset and vocal about it. Some of the things he now considered of value to himself or his environment weren't being considered in the way he wanted. And he sought more change.

In 1960, Congress reinforced the old Sustained Yield Act with the Multiple Use-Sustained Yield Act, directing that all the resources on the National Forests be managed and coordinated—not just one or a few. The Forest Service had for some time considered its management that of multiple use but not to the extent this act mandated. Thus began an era of more intensive management than we had previously known.

We had basic management plans for most of the recognized resources. But now came the plan of plans—the Multiple Use Plan to pull all the others together in an effort to coordinate all the
resource activities. Quickly we realized that the job was too large and too complex for the professional skills of a forester alone. So other disciplines were added—wildlife biologists, landscape architects, hydrologists, soil scientists, archeologists, geologists, engineers, to mention a few.

Changes influencing National Forest management took a rapid pace from 1960 to the present time. Some of the major influences are the National Environmental Policy Act, the Wilderness Act, the Resources Planning Act, the Endangered Species Act, the Cultural History Act, and the recent National Forest Management Act; all these reflected public concern for how forest land, specifically National Forest lands, are managed.

How have these and some other factors affected National Forest management as we know it today? Let's take an example and see: Timber is still the "activating" resource. By that I mean timber harvesting activities activate the impacts and need for coordination with other resource values. It wasn't too long ago that our compartment prescription considered only timber management aspects of a given area. In fact, we called it a "pre-sale prescription." It mainly considered such things as how much timber, what kind, does it need cutting, when, how much, how do we get it out, and so on. Not so today. The prescription, or plan for a management compartment, today, is basically a mini-land management plan. Not only does it plan the many aspects of timber management and harvest, but also includes coordination measures for wildlife habitat, featured species, soil and water conditions and requirements, need for water quality monitoring, esthetics, shape and layout of cutting units, and the transportation system. A survey is made to determine whether endangered species are present or if there are any unique cultural historical values to be protected. Several professional disciplines may be used in making the compartment prescription. A landscape architect may assist the forester in laying out and shaping cutting units to create the least visual impact so they are as esthetically pleasing as possible. Sometimes a cultural history survey by a qualified archeologist is necessary. In short, the job is a highly complex one with an almost infinite number of things and coordinating measures to be considered.

But the job isn't done yet. While the prescription is being prepared, an Environmental Analysis Report is also made, which describes the various activities, impacts, and planned mitigating measures to determine if a formal Environmental Impact Statement is required as provided by the National Environmental Policy Act.
But the job still isn't done. Assuming an EIS is not required, the compartment prescription is reviewed and approved by an interdisciplinary team before final approval and activities on the ground can proceed.

To make things even more complex, all of this must fit into the system of land management planning and public participation in our decision making which we began in 1971. Through the National Forest Management Act, Congress emphasized its commitment to land management planning. The Act strengthens and refines the planning process by ensuring that planning is comprehensive and fully open to the public. In general, Congress supported our planning process but gave new direction to improve what was already being done. We have until 1985 to prepare land management plans for all units of the National Forest System. Resource plans, such as timber management plans and range management plans, permits, and contracts, must be consistent with land management plans. Dr. Thomas C. Nelson of our national headquarters will discuss the National Forest Management Act with you this afternoon.

National Forest management today is far more complex and intensive than we knew even 10 years ago. We are managing many more resources and values than one professional discipline can effectively master. So National Forest management must today be a team effort of many professional disciplines and the public for which we manage these lands.

SUMMARY

In the early days, National Forest management was mostly a custodial role. We did fire prevention and fire control. We built some roads and planted cutover lands.

Then as change came, we began to manage on an extensive basis. Demand for timber was high and timber was king. We selectively cut. One professional forester was enough to plan and do it all in many cases. The fire prevention, fire control, and planting jobs were still with us. We were beginning to manage recreation and wildlife. People weren't too concerned or mobile, but change was taking place rapidly—better education, more money, more leisure time, more urbanism, and the exodus from rural America.

Then came the gradual return to the outdoors. National Forest lands were used more and were scrutinized more closely. People spoke about the National Forests individually, collectively, and through their elected representatives. Our management changed. We added more disciplines and began more intensive management of more resources by using the interdisciplinary approach.
Today we are doing a much more intensive job of National Forest management. The manager of National Forest lands considers, balances, and coordinates many things, such as the Resources Planning Act, Historic Preservation Acts, the Endangered Species Act, the National Environmental Policy Act, the National Forest Management Act, the Multiple Use-Sustained Yield Act, silvicultural needs, soil capabilities, wildlife needs, road needs, recreation needs, wild or scenic areas, fire management needs, public involvement, visual esthetics, range management needs, and air and water quality.

Things have changed. We've examined only a few of the changes here today and some of the influences that brought them about. There will be more to come. And National Forest management tomorrow will be as different as the comparisons we've made here. In a way we may be looking into a crystal ball because historically, changes in forest land management have taken place first on public lands and then gradually spread to private lands. Many private landowners, for example, are now using an interdisciplinary approach to forest management. Perhaps these and other techniques being developed to guide National Forest management may be valuable tools for private land managers tomorrow.

**DISCUSSION**

**Question:** Can the U. S. Forest Service justify economically the intensive management applied to small tracts of land on the National Forests?

**Answer:** In the South, the answer is "yes." There are probably some areas where intensive management is not justified, and the National Forest Management Act addresses itself to this matter. We've made some economic analyses recently for slash pine in the Coastal Plain. The return is about 7½ percent. Economic returns of intensive management in the deep South for loblolly, longleaf, and slash pines are very good.

**Question:** In three southern states—Arkansas, Texas, and Louisiana—groups of people have alleged for a number of years that the forage resources in the loblolly-shortleaf-hardwoods type is mismanaged in these states. Are these groups having any impact on the Forest Service?

**Answer:** Yes, I think they have been heard. I've seen some marked change in range programs in the South during the past 20 years.
Question: How much have your administrative costs increased? Since you now have to have more intensive planning, how has this affected your administrative cost?

Answer: There is no doubt that administrative costs have increased. Last year, on the National Forests in Mississippi, the money to the people at the ranger-district level averaged about $4.30 per acre. I can remember when that figure was $1.25. How much of the increase is due to inflation is unknown. We now have many more discipline specialists involved, and more planning; this has had a material effect on the amount of money we have had to put into planning.

Question: A worthwhile function for a National Forest might be to manage for high-quality, scarce, tree species, such as black walnut. Have you heard of any effort in that direction?

Answer: We are moving more toward hardwood management where we have sites capable of producing hardwoods. Also, we are pushing longleaf pine management on sites where industry would be growing slash or loblolly.

Question: How are you handling public involvement in Mississippi, particularly in the preparation of the Unit Plan?

Answer: Many methods have been tried in public involvement. Perhaps we should put quotes around the word "public." The interest is public as soon as you get involved.

In the case of the Unit Plan in Mississippi, generally the public has three opportunities to participate. Before we prepare a Unit Plan we hold a public meeting within the local area affected by the planning unit. We advertise in local newspapers, radio, and press that the meeting will be held. This meeting is unstructured; we listen and try to gather information. After this we go back and prepare the Unit Plan in draft form and the Environmental Impact Statement as required under NEPA. This is mailed out to the "interested public." Over a period of time we have built up a good representative sample of the public--at least the public that has shown enough interest to inquire and comment on the plan. The public gets a shot at it there, and a second shot is in connection with the Draft Environmental Statement before it is filed with CEQ. Their comments
are incorporated into the Final Environmental Statement, and it is mailed out to this same "public" again for comments, before the final Unit Plan is approved by the Regional Forester or the Forest Supervisor.

Other public involvement methods are being used. Texas is using the "charrette," in which a somewhat captive audience is brought together for a two- or three-day work conference. This method has been effective in some cases.

**Question:** In your planning process, how do you handle the amenity values? Some of your decisions can't be justified in economic terms--the planting of longleaf pine, for example.

**Answer:** All of our decisions are not based on pure economics; they are based on public desires and demands. So far as longleaf pine is concerned, I'm not sure that it is uneconomic.

Longleaf pine is a species which we should retain in our forests of the South, and it is a species which is not much perpetuated in the private sector. I think you could apply similar reasoning to our decision to use a sawlog rotation as opposed to a pulpwood rotation. The economics of sawtimber production on the basis of a pure cellulose rotation may be questionable, but there is eventually going to be a public need for larger sawtimber. Therefore, it behooves the National Forests to move in that direction rather than towards short-rotation cellulose production.
In this paper I will discuss the forest management programs of state agencies as they apply to private forest land and some of the qualifications that necessarily attend such programs in the South. While nearly all states have some responsibilities in connection with public forest land management, and some states even have major responsibilities in this area, most southern state forestry agencies are primarily involved with the privately-owned forest.

We should recognize at the outset that private forest owners, in most instances, are successively, or continuously, offered a wide range of management-assistance services from a large variety of sources. This is probably unfortunate, but quite true. From whence cometh help? We have the SCS-ASCS group, the Agricultural Extension Service, the LAP or other industry programs, including the industry procurement representative, the Tree Farm Program, the forestry consultants, and often various contractors or vendors as well as the state forestry agencies. There are also frequently other localized sources such as co-ops or aggregates. In any event, an alert forest owner in the South has several forms of management assistance available to him. I have no intention of attempting to equate these various sources of assistance since the selection is highly influenced by local situations and individual owners. The more democratic sources of assistance say, "There is more work than all of us put together can possibly do." And this is quite true. The more bureaucratic sources of assistance say, "This is my assigned responsibility. Keep your cotton-pickin' hands off."

Why should a state forestry agency provide management services to forest owners? Probably first of all because most agency organic acts stipulate the state's concern in the protection, management, development and utilization of the total forest resources of the state. Secondly, because the Cooperative Forest Management Act of 1950 indicated, through federal financial support,
the nation's interest in the effective management and utilization of privately-owned forest resources. Lastly, the state often furnishes management assistance because it has been requested by the owners themselves. On a more professional basis, it resolves itself to a situation where the private owner must be provided assistance if what we believe to be society's goals and objectives toward the forest resource are to be met.

What kinds of assistance are provided to forest owners? They are, of course, highly variable. They may be quite extensive or very intensive. Typically, assistance might start off with a reconnaissance and inventory stage, followed by a recommendation for practice. This could involve site preparation, planting, thinning, harvesting, prescription burning, or other treatments. After owner agreement, the practice might be implemented through an execution phase involving marking, selling assistance, cutting, and completion inspection. At any stage, the process may be harmonized with industries, consultants, vendors or contractors, or pertinent cost-share programs. The assistance may be provided free of charge in some instances, for a fee in other cases, or handled through referral in some instances.

All professional foresters recognize the importance of effective forest management by the non-industrial owners. These owners represent 60 percent of the total forest land ownership, and these lands are producing at less than 50 percent of their productivity potential. The long-term effect of the goods and services furnished by the private sector are vital to attaining identifiable need requirements.

Critics of the forest management assistance program in the South are quick to point out that, essentially, the program has been a failure. And there are some reasonably sound reasons for such a statement. What are the factors which have led to this negative assessment? A review of completed cases quickly indicates that, taken individually, they have been markedly successful. However, the state agencies, in any given period of time, are providing assistance to only a very small proportion of the total forest land in need of treatment. In this sense, the program has been less than successful in many geographic areas.

A typical southern state, with a total staff of 40 management-assistance foresters might provide an annual case accomplishment of only 1200 instances of productive assistance. This is likely no more than one percent of either the number of private owners or the area of privately-owned forest land in the state. Even allowing for a ten-year service-period interval, this level of contribution
will not produce effective results. It is often pointed out that one of the negative elements is the fact that management recommendations require one-to-one contact and that there is no substituting of professional assistance at many of the points.

The crux of the forest management problem as it relates to the non-industrial private owner has to do with the lack of adequate regeneration or, at the least, adequate kinds of regeneration. This is largely attributable to the fact that we are prone to accept harvest as a final step in what should be a continuous resource management process. While the wood processing industry has been derelict in the prosecution of a regeneration effort as a corollary to the harvesting operation, the consulting foresters and state agency representatives must also shoulder a portion of the blame because of their predilection with growing a crop instead of managing a resource. It is my candid opinion that industry will not voluntarily move to solve this regeneration problem until they are forced to do so by fiat or until they are encouraged to do so by an effective incentives program. I see no reason why such an incentive could not be supplied.

The productivity condition of non-industrial private forest lands is now in such a lamentable state that relatively drastic measures must be taken if we are to avoid a major reduction in the availability of goods and services from the resource. At the very least, a redirection in the landowner assistance and procedural programs must be immediately considered.

First of all, we must give up our long-standing romance with planting trees. We can no longer afford to disregard the potential benefits of artificial reseeding in all instances where it is site-suited. With experience, we will be able to extend the practice to areas not now considered acceptable.

We must also divert some of our reforestation efforts to timber stand improvement. Don't lose sight of the fact that we can do more good, in less time, with less money, under TSI practices than we can with reforestation. Have we, perchance, unknowingly adopted the assumption that we are, variously, wood procurement people, forest managers, wood processors, silviculturists, foresters, entomologists, etc., and failed to realize that we are essentially the only available managers of a basic resource? The question is very germane.

It is a matter of fundamental concern that the nation's stake in the non-industrial, privately-owned, forest resource, and hence its management, has never been identified. We have made some
haphazard efforts to place economic values on stumpage, and we have tried to show the dollar value of forest-oriented recreation as well as other goods and services. But these estimates fall far short of demonstrating the resource as a component of our lives. This must be done.

We must also devise ways and means of encouraging and utilizing more natural regeneration of the type desirable. In many if not most instances, the silvicultural technology is now available. It is a little bit ludicrous of us to put so much emphasis on costly artificial regeneration in the face of presently defined needs and forecasted demands. We must look at the short-term cost of delivered wood fiber, and also consider the long-term costs of future deliveries. Remember, our option of exercising some of the silvicultural alternatives available to us may be on the verge of disappearing.

The one, overwhelming, basic fact regarding forest management practices in the South is that very soon, the fiber products of the forest are going to be luxury items. Someone must decide whether the society can accept this as a way of life. At first glance, it would seem that our wood-fiber economy is a vital part of our lives. This is probably a safe assumption. Certainly, it has been a basic ingredient of the progress of this nation through its first two hundred years. But remember, the decision for "guns or butter" must be made!

We have not communicated the value of forest management to the landowner in his terms and with his objectives in mind. In many cases, we have not even identified who these landowners really are. This is a basic prerequisite in communicating any concept. We know we are dealing with a very heterogeneous group, small in comparison to the total population, but our attempts to reach them have been piecemeal not only within our organizations, but throughout the forestry community as a whole. Although the various organizations have different motives in selling forest management, these motives have too often been the centerpiece of many communications with landowners. Is not our resource need and opportunity the real motive? Do we know why landowners do or do not choose to manage their forestland? Again, we have some general answers. To do an adequate job, we must identify these people, determine their motivation for land ownership, and show them how forest management can satisfy that motivation. This calls for an integrated, intensive program of communication that explores channels we have heretofore not used. It calls for all organizations to commit the highest priority to developing an organized effort. The state agency, with the responsibility for the total resource, should be a leader in this effort.
DISCUSSION

Question: What can be done with the kind of landowner who only wishes to cut off the timber he has on his land but is unwilling or unable to put money back into his land for reforestation, even the small amount needed for participation in the FIP program?

Answer: There are incentives available and they should be made sufficient to induce this individual to take this step. If they are not sufficient, someone should make the decision as to the value of that particular property in terms of its contribution to society. If the value is great enough, then we must assure its regeneration through fiat or some other means, including the possibility that industry could have a program for it on a no-cost basis to the individual. If goods and services from that area are essential to our society, we simply have to regenerate by one means or another. Most of us think the 75 percent cost-sharing program is ample encouragement, if the rest of the information program is communicated to the owner.

Question: When you used the term "fiat," were you thinking of forest regulation, which was dismissed back in the thirties, or of taxation to the point where it becomes unbearable if the land is not in productive forest, if the education effort you spoke about failed?

Answer: All I'm opting for is a state forest practice act in lieu of federal regulation. I think the matter can be handled by local laws, with or without a combination of tax-related regulations. I am certainly not opting in any way for federal regulation, which already is in effect in other areas.

Question: This question has to do with the extensive strip-mining of lignite material, particularly in Texas. Will the de-emphasis of tree planting result in more pasture and less forest cover? It may be easier to put the land into pasture than into forest, and the monetary returns may be higher.

Answer: Strip-mining doesn't bother us very much in Texas, because most of the strip-mining occurs in areas that are not critical for forestry, and the land is in much
better shape after the strip-mining than it was before. Again we get back to communication with the owner. People have lost money in the past five to ten years in Texas cattle operations. We haven't done a good job of telling the story of opportunities in forestry. But you're right that when strip-mining land is reclaimed it is in prime shape for an agriculture operation of some type, usually grazing.

Question: In Texas, is the situation that strip-mined land is in better condition than it was prior to strip-mining the result of a strong strip-mining restoration act?

Answer: No; I think what I referred to is merely a consequence of our situation in Texas and the particular soil we are dealing with and the processes used. In areas with a high acid concentration in the subsoil this would not hold true. Kentucky would be a good example.

Question: Apparently you feel that in many states there are too few people working at getting this message to the small landowner. Do you have any suggestions for improving the situation?

Answer: Nothing tangible. Some of the Eastern seaboard states have been more successful than the Gulf coastal and southwestern area in obtaining personnel for management assistance. It is a matter of creating sufficient enthusiasm within the individual state so the state legislature can be impelled to realistically consider the problems involved.

Question: Do your state foresters develop management plans for small landowners if they request that it be done for their land?

Answer: We do.

Question: How much good has the tree-farm program done for the state?

Answer: It has done a great deal of good; tree farmers are pre-sold people. We don't have any problems in forest management assistance to tree farmers.
Question: Would it not affect the landowner if he sees that he can make a little more money by the wood being valued for what it is really worth at the consumer level?

Answer: Economists tell us that stumpage prices are not an inducement to good forest practices for a landowner. We could really tell a good story about the effect of forestry operations if we considered the value of recreation, wildlife, water control, and all the other goods and services of the forest.

Comment: In dealing with small landowners, two attitudes seem to appear. The first is that the small landowner is reluctant to turn over the management of his land to a large corporation, for fear the corporation wants something in return. The second is the fear on the part of the corporation that a precedent will be established if the corporation performs reforestation for the small landowner free of charge or at very low cost.

Answer: I tend to differ with you. Let's compare the cost of an industry's management of fee-owned land with the cost of its harvesting operation when it takes the stumpage from a private owner. I think there is plenty of money left in the bank account to reforest the area free, at least in many cases. One of the problems we have in this connection is the schism between the wood-procurement man in industry and the forest-management man in industry. In most instances, the wood-procurement man, organizationally speaking, is not responsible to, not interested in, and not related to the forest management of fee-owned lands. The interest of wood-procurement people nearly stops after the mill is supplied with wood.

We need to talk to industry about reorganizing its approach to the small private owner so that it can provide him with more tangible assistance, looking toward the regeneration of all tracts harvested by a firm in a given year. I do not expect industry to do this work free. I don't think industry should, although there is a possibility that it could. A new relationship must be established between industry and private owners providing stumpage products.
Comment: You have made a very thought-provoking presentation. However, in talking about industry, you have tended to generalize, which is a mistake when you are talking about any group. Most of my experience has been in Georgia and South Carolina, and in this area there has been a very strong effort by industry to provide services for landowners if they wish them. The services have not been provided free of charge.

I've worked with many landowners, and they vary widely; some of them are only interested in what they can get out of their land today, perhaps because of a short life expectancy, lack of interest in what happens to the land, or an immediate need for cash. It is the prerogative of these owners to do what they want with their lands.

I'm somewhat apprehensive about state regulatory policies. When you get into a state program you are into federal funding. When federal funding is involved you are going to open the door not only to better timber management but to a consideration on these small tracts of all the things the Forest Service is now considering. This will open a Pandora's box of administrative red tape for the landowner when he gets involved.

Answer: I think you are quite right.
Any discussion of industrial forest management will reflect the bias of the speaker and his company; I know of very few companies that have identical forestry philosophies or manage for the same objectives.

However, since my professional experience has been in both of the principal forested regions of the United States—the Pacific Northwest and the South—I believe I can put into perspective some of the changes that are taking place in industrial forest management nation-wide.

The practice of forestry has probably changed more dramatically during the past 10 years than in any other comparable period of history. From where I sit, the change so far is only a hint of things to come.

We have already seen vast improvements in harvesting machinery, tree utilization, and wood products that require less timber per unit. Advances in silviculture include containerized seedlings, direct seeding, improved planting machines, herbicides, improvements in forest inventory methods, and in the genetic characteristics of the trees we plant. The list is a long one, but I am convinced that the options open to the forest manager will multiply many times during the years ahead.

ROLE OF THE INDUSTRIAL FOREST

I have been asked to discuss forestry as it is practiced by industry. Forest industries own less than 13.7 percent of the commercial forest land in the United States, but industrial forest lands are producing far greater timber volumes per acre than any other ownership class.
More than half of all the industrial ownership is in the South, but this still accounts for less than 20 percent of the total forest ownership in the region. Some 70 percent of the South's commercial forest land is owned by approximately 2,400,000 private non-industrial owners. In the Pacific Northwest, more than 60 percent of commercial forest lands are publicly owned.

Obviously, each of these ownership classes must deal with a different set of criteria in managing its forest lands.

In 1970, forest industry lands provided 34 percent of the national softwood harvest from 13.7 percent of the commercial forest land. The removal of softwood growing stock and sawtimber from industrial lands has exceeded growth for the past 30 years, largely because of the volume of over-mature Douglas fir and ponderosa pine in the Pacific Northwest cut each year.

In the South in 1970, sawtimber growth was 133 percent of sawtimber harvest and growing stock continued to increase.

The point I'm leading up to is that society has obviously assigned to the industrial forest responsibility for providing a major portion of the nation's total timber requirements—far more than is expected from any other ownership class on a per-acre basis.

I believe that the priorities that have developed for each ownership class make abundant good sense and that it also makes sense to manage each forest class to meet its assigned objectives. For the industrial forest, this will require major capital investments, intensive management, frequent rotations, and maximum utilization of site potential consistent with environmental requirements.

FORESTS SERVE DIFFERENT NEEDS

State and National Forests serve many public purposes in addition to providing for some timber production. While harvests from the National Forests today are far below their sustainable cut, a case can probably be made for a certain buildup of timber reserves in the National Forests to serve future generations. Public lands also provide other amenities, including recreation, watershed protection, and wildlife habitat.

Public lands are a public trust, and therefore do not carry the tax burdens, investment, and carrying costs that a private landowner must pay on his lands. Simply put, it will cost society
less out-of-pocket dollars per year to grow timber reserves on public lands than on private lands. However, the public should be made aware that unused timber reserves do carry a cost burden and only producing dynamic forests are in the best economic interest of the country.

Let us be aware that the public can dedicate only so much of the productive land of the United States into areas carrying excessive reserves, whether they are on U. S. Forest Service land with a lower than possible allowable cut, or land completely tied up in Wilderness Areas. As the pressure mounts on production the public can only suffer through higher prices.

As of now, however, there is little evidence that we can anticipate greater production of timber from the National Forests in the near term. Thus the burden falls on privately-owned forest lands to meet the nation's growing need for timber.

Small private ownerships, which make up the majority of the South's forest lands, are held for a number of reasons, sometimes including timber production.

These properties can be expected to change ownership periodically, as estates are settled or the owners shift to other investments. To date, private landowners have shown little inclination to invest heavily in intensive forest management, being content to get what return they can at a minimum expense. The massive efforts of the Third Forest and FIP notwithstanding, the small landowner perceives as many disincentives as he sees incentives to practice good forestry. Any added restrictions such as land use laws with their inevitable control through forest practices acts will surely add to the list of disincentives.

The industrial forest, on the other hand, is generally owned by a corporation that can be expected to continue in existence over time. The forest lands were acquired to assure that adequate timber reserves would be available to operate manufacturing facilities costing millions of dollars. It might fairly be said that the existence of the industrial forest makes possible the investment in manufacturing facilities and jobs, since there are few investors today willing to make substantial investments in plants with a life expectancy of 20 to 40 years without some assurance of a raw material supply during that period.

This is in sharp contrast to the period during the 1940's and '50's when portable sawmills moved across the South, operating at one location just long enough to cut nearby timber, then moving to another location.
The emergence of a diversified, integrated forest products industry in the South over the last 15 years has accelerated the pace of forest management by industry. Where once the pulp and paper industry existed separate and apart from what remained of the lumber industry in the South, today you find major companies operating pulp and paper mills, sawmills, plywood plants, particleboard plants, and pressure-treating plants as an integrated organization—all dependent upon the same forest resource.

Within my own company, there is intense competition among the various manufacturing units for a share of the timber resources; there is no automatic allocation of wood to any facility. We think such competition is healthy, because it compels a continuing review of priorities and leads to better utilization of the total forest resource. With this concept in mind, the resource tends to reach the conversion unit best able to utilize the resource but is also very effective in identifying non-competitive elements in the integrated manufacturing units. Market price transfer of the material, if done properly with every unit acting as a profit center, tends to seek out those units not paying their own way, and then a proper business decision can be made at that point.

Parenthetically, it is interesting to note that our predecessor company at Bogalusa—Great Southern Lumber Company—foreshadowed today's integrated industry. Starting with a giant sawmill that was the world's largest in 1908, the company added one of the South's first kraft pulp mills in 1918 to utilize sawmill residues. By 1920 the company began the large scale reforestation of cutover lands to assure continuity of the pulp and paper operation.

By 1937 the sawmill had been shut down. At the same time the company diversified into the manufacture of corrugated shipping containers. Now 40 years later, we are back in the lumber business and are producing plywood and treated wood products as well.

**HOW WE ORGANIZE TO MANAGE THE FOREST**

In the South, Crown Zellerbach owns or controls some 1.2 million acres of timberlands—mostly pine. We assign responsibility for growing and harvesting this forest to the same group, working under the supervision of a general manager of timber operations.
Our planning begins with the unit forester, who has the responsibility for approximately 40,000 acres. I like to call it "bottoms-up planning" because it is entrusted to people at the lowest possible operating unit.

You get the best people you can, then define the roles you expect them to play, let them build a plan which is integrated with the overall management plan, and each becomes an integral part of the total plan.

There is of course a lot of give and take along the way, but by planning well and measuring performance against plan, we assure maximum flexibility at the operating level while still achieving the key results expected of us.

Let me emphasize here that the role of the professional forester in our organization has greatly expanded to include not just growing timber, but also developing harvesting systems, financial analysis, sales planning, and operating manufacturing facilities. Forest management today is part of a total system and it is urgent that foresters be trained to deal with as many elements within the system as possible if they are to be effective in their assigned roles.

I am constantly reminded that within my own company we are competing for investment dollars that are also sought by other lines of business within the corporate structure. It takes careful preparation, analysis, and effective salesmanship to convince top management that an investment in a given forest project is more attractive than other alternatives. Our forest managers must also meet these tests and be proficient in both verbal and written communications so that a sound business proposition such as we know forestry to be, never has to take a secondary role when being judged as an investment alternative.

The practice of forestry on industrial lands is a never-ending cycle. However, I suppose it can best be described as beginning with the harvest of the existing stand. The way the stand is harvested and utilized has a great influence on how we go about establishing and managing the next generation of trees.

It is important to obtain the highest possible utilization of the volume harvested and to do so at the lowest cost. In most instances, this means either clearcutting, partial cutting, thinning, or cutting to a seed-tree stand. We rely on a variety of equipment and systems, depending on terrain, weather, and other factors. Our company logging operations are highly mechanized.
We use hydraulic shears to do most of the felling, but the chain saw is still used for tops and limbs. Virtually all material is moved to the landing—tree length—using both high flotation rubber-tired skidders and track skidders, equipped with bunk grapples or chokers.

Construction and maintenance of all-weather logging roads throughout our managed forest system is a major activity that goes on year-round.

Where applicable, specialized crews go into an area and harvest the poles and piling that are needed for processing in our treating plants or are marketable as sales to outside customers. These are generally sold as barky poles or piling direct to other treating plants in the area.

Felling crews using shears, with power saws as clean up, move into an area designated for cut and start the harvest. When the capital cost of the shears is taken into consideration, there is probably very little or no savings accrued in the felling operation, but by being able to bunch the felled material for the skidders, the system does save money. Skidding accompanies the felling operation, and most of the material is skidded tree length to the landing. In some instances logs are then cut into lengths suitable for the converting plant that the logs are assigned to, and in other cases the fiber is left tree length to be loaded later.

Log loading and hauling is generally disassociated from the skidding. It is more efficient to load from pre-decked landings so that the loaders and trucks are not dependent on the wood flow at the skidding operation.

Those logs that are hauled as tree-length logs generally go to an integrated operation or to a yard where a more finite grading can take place. We find that it is much easier to keep up with market changes and demand for special cutting if we can concentrate the job rather than have to train every cutter that we have.

Our objective is to recover all merchantable fiber from the site before preparing for reforestation. Until now, we have been faced with the task of disposing of considerable volumes of tops, limbs, logging slash, and cull hardwood trees before site preparation and replanting. To accomplish this slash disposal, we have relied on rolling choppers to crush the material for burning or decomposition into the soil. We are presently using two types of tractive power for pulling choppers. Where the terrain and soil conditions allow it we can use a heavy duty rubber-tired skidding
tractor pulling 12-foot choppers and expect to do approximately 4,500 acres per year per machine. When soil and terrain dictate the use of tracked machines then the acreage per year per machine is reduced to approximately 2,500 acres.

By the end of next year, we expect to be recovering considerable volumes of this slash material to be used as boiler fuel in a power boiler at the company's Bogalusa, Louisiana pulp and paper mill. This boiler, incidentally, replaces five smaller units which have been fired with natural gas. We will also be using waste from our own debarking operation, and in addition we plan to use available waste from sawmills in the area.

At the logging site, chipping operations to capture this residual fuel material will not only produce needed fiber but will let us productively remove material now having to be piled and burned or chopped. With gas prices at $2.00 per MCF or oil prices at $13.00 per barrel the fuel is competitive if it lies within a 25-mile radius of the mill.

For regeneration, we plant seedlings, direct-seed, and use the seed-tree method—based on what's best for each situation.

Through our genetics program we are developing improved seed for use in our operational planting program. We have over 100 acres of Livingston Parish loblolly pine grafted in our seed orchard. Some 7,000 acres were planted with seed-orchard seedlings during the past planting season. By 1983, we should be able to furnish all of our operational loblolly needs from the seed orchard. Meanwhile, work is proceeding on controlled cross-pollination in the seed orchard as well as in new selections in loblolly plantations. Large scale progeny tests are being planted so that selections of the best trees of the best families can be made for our second-generation operational seed orchards.

Our use of direct seeding has not been extensive, but there have been locations where this technique has been effective and economical in regenerating an area.

The seed-tree method, which we had all but abandoned some years ago, is taking on new significance in our regeneration program for several reasons. The cost is lower particularly in light of today's soaring labor, equipment, and energy costs. In some of our managed forest areas where the natural seed source is already of high quality, we do not feel that we could get enough additional growth from selected planting stock to offset the higher cost of planting seedlings.
The problem of overstocking—long one of the major drawbacks of seed tree regeneration—may actually become a plus as new harvesting systems are perfected.

I mentioned earlier that we will be picking up logging slash for boiler fuel. In the same vein, it may become feasible to accomplish a pre-commercial thinning of overstocked plantations with the value of boiler fuel collected offsetting the cost.

Once the new forest is established, it is necessary to protect it from fire, insects, and disease during the early years of growth. Although fertilization has been useful on some stands in the Pacific Northwest, our trials to date have been inconclusive in the South. We know that on some of our soils fertilization is indicated. On others, our tests so far show that we would have a poor economic return from fertilization. That doesn't mean that we have given up. Tests are being made periodically to find out whether or not we get response with different formulations on various soil and moisture conditions.

In some stands, we do make limited use of herbicides--mostly by injection--to control undesirable tree competitors.

As harvesting costs increase and our ability to use smaller diameter timber grows, we are constantly reviewing the length of our rotation age and the number of intermediate thinnings to be made during that rotation.

When our forests were principally devoted to the production of round pulpwood, it was not unusual for a stand to be thinned for pulpwood every five years or so. No longer is this the case.

Through the use of continuous forest inventory, and computerized analysis of stand volumes, we annually calculate an allowable level of cut. We then attempt to achieve that harvest at the lowest possible cost, using both company and contractor logging crews.

In addition to continuous forest inventory, we make operational cruises which are designed to analyze the stands to give the manager all of the alternatives offered. Information gathered and analyzed lets the manager choose the best product and economic alternative available. It also shows the number of stands that need to be harvested to achieve the assigned cut.

We are also constantly looking at alternate spacings, thinning programs, and rotations, as new harvesting systems and market requirements develop.
It is vital, it seems to me, that timber stand management and mechanized systems for planting and harvest complement each other.

All of these operations are conducted in accordance with carefully-developed environmental guidelines designed to comply with the many local, state, and federal requirements.

It has been our long-standing policy to allow the public to use our lands for outdoor recreation, including hunting, fishing, hiking, and other pursuits. But in today's era of increasing costs, there is constant pressure on the forest land manager to derive whatever additional revenues are available in order to achieve adequate return on the forest investment. This one day will probably lead to a program that will extract revenues from recreational use.

It is not unusual for a landowner to lease drilling rights, sand and gravel rights, or grazing rights on his land. There is also growing pressure for rights of way through forest lands for pipelines, power lines, and highways—all of which reduce the area available for growing timber.

As land near urban centers is lost to development, we make an effort to replace this land with sites in rural locations to maintain our forest land base. The only other way that we can maintain volumes necessary to meet the needs for home building and other forest products is to improve the growing capacity of an ever decreasing land base.

It has been estimated that timber requirements in the United States will more than double during the next 25 years, but we have no reason to believe that the area available for growing trees will do anything but decrease. Therefore, it seems to me that it is vital for industrial forest lands to continue to do what they have so successfully done in the past—grow more fiber per acre than any other ownership class.

I believe that industrial forest lands are capable of doing just that, unless the restraints imposed upon them are so great as to make it economically impossible for forest industries to continue producing products at a price people are willing to pay.

By and large, industry has demonstrated a great capacity to be responsible for protecting the environment and responsive to valid public interest in the practice of forestry. Industry has also shown great ingenuity in developing new and better ways of growing
more fiber per acre, utilizing more of each tree, and in developing worthwhile products from every part of the tree—from stump to tree top.

Ecological factors, government regulations, and processing economics, together with basic market trends, will determine the choices among growth and yield alternatives.

While I firmly believe that both public and private forests should provide their share of the nation's additional timber needs, I anticipate that it will continue to be the industrial forest that carries a major share of the load—on only 13.7 percent of the total acreage. Only if the industrial forest manager is adequately trained to meet this challenge and allowed the freedom to utilize his skills and judgement can the industrial forest be expected to adequately meet this need.

(Editor's note: Following his talk, Mr. Prater showed a film of a new shredder machine operating on a cutover hardwood site managed by Crown Zellerbach Corporation.)

DISCUSSION

Question: In reference to the film of the shredder that you showed, you indicated that if you were working on pine sites instead of hardwood sites, you could put a shoe on the machine so that it would not work into the soil. Wouldn't you be restricted to operations behind the clipping operation? You couldn't afford to hit a six-inch-high pine stump with that thing, could you?

Answer: The shredder will take an eight-foot pine stump. When the film first started the operator crossed over a six-inch stump. I've seen it go through 18-inch or greater stumps. However, there is really no restriction as long as the stump is not wider than the shredder wheel is wide. It may pause as it goes in and goes through the series, but just as soon as it winds back up to 250 rpms it hits the stump again. It will go through any stump that will fit within the marks on the machine.

Question: Have you made any comparison of the nutritive values of the logging slash of either hardwood or pine as compared to its value for boiler fuel?

Answer: No. I think that this is something that industry, the universities, or the Forest Service must do. Certain
questions have to be answered. I've read many things concerning both sides of this question of removing or leaving residue on the site. I've heard that it would take ten rotations before you could do any appreciable damage to the soil, and I've heard that it would take one rotation. No one really knows. Right now, our alternative method is to pile in rows and burn, so we end up with a row of ashes somewhere in a forty-acre strip and the rest of the area is just as though we had taken the slash off for fuel anyway. Many people are row-piling and burning for site preparation right now. They're taking all of the leaves and nutrients off the area and returning the ash in strips.

Question: Much of your talk was concerned with clearcutting and how your company is putting a lot of money into developing machines to help in your clearcutting operations. Are we going to have to rely more on clearcutting to help meet demand, or are we going to be able to put more weight on natural regeneration?

Answer: Right now I think that it is a matter of economics. For years we moved away from regenerating by the seed-tree method of regeneration and generally speaking we still have to yet. We do have a few areas such as our Tickfaw Management Area in Livingston Parish, Louisiana, where there is a very good natural strain of trees and the seed-tree method is paying for us.

It costs $20-$30/acre depending on what one has to do to prepare a site for planting and $25-$30/acre to plant. If you put this into a site and carry interest costs to the end of a 30-, 40-, or 60-year rotation, you wind up with a tremendous investment. I know that every year that we don't plant our best genetic stock we lose. So, it is an economic decision every time depending on what species we're starting with and the potential of the seed trees on the area.

For example, loblolly pine in Livingston Parish is a very good strain, particularly for fusiform rust resistance. With this kind of stock we can afford to select and leave the best seed trees to naturally regenerate the area. In fact we go another step further. Once a new stand is regenerated from these seed trees we go in at seed-collecting time, fell these trees, and collect the seed from them to use to grow some of planting stock until our seed orchards get into full
production. This seed is better than the average seed we buy from anyone else.

Question: How many seed trees do you leave per acre?

Answer: Four or five.

Question: When do you think you will be doing all of your planting with genetically improved seedlings?

Answer: In 1983 we should have all of our first generation seed orchards in full production, and we'll have enough seed to do all of our planting. We will start getting second-generation seeds in 1990. If everything goes well, and we don't get any hurricanes through our seed orchards, we should be planting second-generation improved seedlings by 1995.

Question: How do you prepare sites that are wet, easily erodible, have deep ruts left from the logging machinery, and a large amount of logging debris and slash left on them?

Answer: We generally utilize two methods. We try to stay away from shearing, piling, and burning. We do that sometimes when we don't have a need for the fuel and when what we have left is waste hardwoods that can't be used. We usually chop most of our areas at present, and the chopper leaves the area even enough for using planting machines.

Question: Do you have problems with soil compaction when using this heavy machinery?

Answer: We are worried about it and that is why we are buying a lot of FMC track machines with a carrying weight of two or three pounds per square inch. We have also been buying other large rubber-tired machines. I think we are decreasing compaction in comparison to what it used to be and are doing the best we know how to do at this time. We take alternate roads to the loading sites and do everything we can to minimize soil compaction.
Those of us who have been here this morning have heard discussions about forest management as practiced on the National Forests, by state forestry agencies, and by forest industry. The management practices which I would like to review with you are those practiced by consultants on private ownerships.

In 1945, there were only 10 active forest consultants in the South. In 1950, there were about 82. Today, forestry consultants in the southern states number about 200. These are the individuals who actively practice on a full-time basis.

What is a forestry consultant? As defined by Gene Harris, consultant in Tallahassee, "he's a highly trained professional in the arts and sciences of forestry, a college graduate with years of experience in planning, development, management, production, and utilization of land and forest resources. His work is done for a fee or on a contract basis and his services are available to anybody and everyone including industry and the public, rather than full time to a single employer. In short, the forestry consultant may be compared to the country doctor or family lawyer in that he is the general practitioner of the forestry profession." John Squires, a consultant in Jackson, said, "that the consultant forester actually offers much more to a landowner than he can get anywhere else. If there were no such thing as a consultant forester, he would have to be invented. His service includes the small landowner with an operable acreage as well as landowners with many thousands of acres of forest land. In fact, the small landowner probably provides the majority of the work performed by the consultant forester today."
Independence is the hallmark of a consultant. His only interest is the client's interest. His success depends upon the success of his clients. His future depends upon the client's satisfaction. Ethics and morals are his only restrictions. And he is responsible to no one other than his clients.

Forest management on private holdings in the South is as varied as the ownerships themselves. Who are these private landowners? They are school teachers, plant workers, housewives, secretaries, physicians, businessmen, lawyers, farmers, and many others too numerous to mention. This diversification of ownership is typical of the population itself. It involves owners of different racial, religious, ethnic, and economic backgrounds.

Specifically, who owns the 14½ million acres of commercial forest land in Louisiana today? Do you realize that the public ownership, including National Forests, totals only 7 percent? Forest industry owns 26 percent, and these numerous private landowners control 67 percent of the commercial acreage in our state today.

I'm sure you've heard that the terms "private owner" and "poor forestry" have almost become synonymous in the South. Early surveys tended to confirm this widely held opinion.

Let's examine the facts as they exist today in our state. The tabulation below shows the average sawtimber volume per acre by ownership class in Louisiana. The years 1964 and 1974 are compared in order to establish a trend in management practices on the various classes of ownership. This indicates that the private owners are practicing better forestry today than they were a decade ago. The average pine sawtimber volume per acre on privately owned land has increased in the past ten years. As expected, National Forest lands and those owned by industry show significantly greater volumes per acre. These figures are mentioned to point out that although there is little forest management practiced on the small private ownerships, the situation is improving somewhat.

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How much forest management is actually practiced on the private ownerships in Louisiana today? Private owners control about 9.6 million acres or 67 percent of the total commercial acreage. It is estimated that consultants in Louisiana actively manage about 600,000 acres. Technical supervision and assistance from state and federal programs are probably applied to an additional 500,000 acres. This leaves about 8½ million acres of forest land in our state with no management whatsoever.

Let's try to understand what the average forest consultant does for the average private landowner. Most forestry consultants include the preparation and supervision of management plans among the services they offer. I will discuss the class or type of forest landowner who uses these services and how the services are supplied. The owners of large forest areas, and especially industrial and corporate owners, generally employ foresters on a permanent basis to manage their lands. Such owners may employ consultants now and then for special jobs or advice, but most if not all the preparation and operation of management plans is done by the company or the owner's foresters with the help of staff assistants. Large forest owners now generally realize that they can hardly have their lands managed intensively without their own permanent or full-time forester. At the other extreme are the owners of very small forest areas. Such owners generally cannot afford to employ consulting foresters to make and operate management plans. Moreover, most if not all of the forestry advice and assistance needed by these owners is obtainable without charge from public agencies such as state forestry organizations, the Extension Service, the U.S. Forest Service, and the Soil Conservation Service. Conservation foresters, available through pulp and lumber companies, also provide management services to these small landowners without charge.

Between these two extremes is a very large number of landowners who have medium-size holdings. In our state, for example, about 2/3 of the private forest landowners own from 500 to 25,000 acres each. It is with owners in or not far outside this group that most consulting foresters will deal.

The exact limits of acreage that define this group are certainly not clear. Nor is there any reason to believe that there should be any precise limit. The group begins with the landowners who need more forestry advice than can be provided by public agencies, which have a time allowance limit for clients so that their services can be extended to as many landowners as possible. The group extends to the point where the landowners have such large holdings that they need and can afford full-time foresters as permanent employees.
I will now discuss the services which the typical consultant provides. Most of the larger acreages, by this I mean 500 acres and above, are managed on a long-term continuing basis as provided for in a management agreement between the consultant and the landowner. These agreements vary greatly with the ownership, but without exception are not binding contracts. They are automatically renewed on an annual basis unless cancelled by either party, by just giving 30 days notice, with no penalties involved.

Our plans are not hard and fast courses of action which cannot be changed. They are definite enough to chart a course, yet flexible enough to permit change. They serve as a guide to the management, and yet the forester is not a servant to the plan.

We prepare and carry out all the recommendations which we make to landowners by providing all of the technical personnel and the technical equipment necessary. We pay our own salaries and our own expenses. We generally recommend and carry out the same forest management practices on the large private ownerships as are performed on the large industrial ownerships. We do site preparation, tree planting and seeding, timber stand improvement, and other cultural practices. We also build firebreaks, roads, bridges, and other necessary improvements. Many of the larger consultant firms have the necessary heavy equipment and personnel to do this type of work. Other consultants secure contractors for these services. Our firm actually does both. When timber sales are recommended, we mark, estimate, and appraise the value of the timber to be sold. It is usually but not always sold on the basis of competitive bids. With the landowner's approval, the high bid is usually accepted, and after this we prepare a timber sale agreement, arrange for a method of payment, and supervise the logging operation. Generally, along the line as this timber sale progresses, we submit written reports usually along with color photographs to the landowner to keep him appraised of the progress of the logging operation.

Most consultants keep appropriate maps and records for their clients and provide their client's accountants with the necessary information for filing tax returns.

Consultants also work closely with the client's lawyer in matters related to landowners. We also recommend and negotiate hunting leases, grazing leases, and agricultural leases. In some instances, we actively manage agricultural operations.
I would like again to emphasize the point that forest management as practiced by consultants on the medium and the large private-owned property is in many ways identical to the forestry practice on industrial and federally owned land. However, the story is quite different on the small private ownership.

Let's talk for a minute about the small landowner. He is not a unique character separate from other individuals. He is probably above average in capital assets for no other reason than he is a landowner. With the high price of land today even small acreage is quite valuable. Now remember, the small forest owner feels no moral obligation or great urgency to grow more and better trees as many in our nation feel he should. He is guided primarily by the same motives as other prudent investors, primarily by economic benefits which he may receive. Increased profit from his timber sale results in an increased willingness to invest in the future.

It is also important to remember that most private landowners do not own land for the purpose of growing timber. The land is owned for a variety of other reasons, and timber growing is just incidental to ownership. Small landowners have widely varying sizes of tracts, volumes, and values of timber, personal wealth, time preference for cash, and investment objectives. No forestry program has really caught their fancy. A classic study of a small private forest was made by Charles Stoddard in 1961. His conclusions then, I think today, are both significant and timely. The most pertinent of his findings were that continuous forestry on small ownerships has been unfavorably influenced by the rate of return on invested capital, the lack of liquidity of forest investments, ad valorem taxes, high interest rates, and unavailability of credit. Other detrimental factors include absence of systematic marketing channels, limited prices and market knowledge, frequent changes in ownership, and lack of insurance programs. Many tracts are just too small to justify forestry as a business venture. It is therefore not reasonable to expect that most owners will respond any more rapidly in the future than they have in the past to a variety of technical advisory facilities, economic inducements, and risk-reducing efforts unless some important changes are made to bring about lower unit costs of operation and management.

The real problem of convincing landowners that they should be timber producers is the economic situation. The return on timber investment is both low and slow. Investors buy urban rental property from which they generally expect the net annual return in
10 years to equal the investment. Some higher risk businesses, such as sawmills, sell for three to five times their net annual return. Somehow, tree farming must be able to compete with these rates.

One fact that most of us fail to realize is that the owner who has held on to his land certainly has realized more in appreciation of value than he has through use. As foresters somehow we hesitate to dwell too much on this fact. It's probably because it's speculative, but if you don't think stocks are speculative, just look at the financial page in any newspaper. This could happen to land, but it's not likely.

Studies have shown that there has been extremely poor participation by small private owners in the various federally funded assistance programs which have been available over the years. One reason for this may be that a person's alternative rate of return is usually inversely related to his income. Owners in high-income groups would ordinarily be content with a lower rate of return on forest investments than those in low-income brackets. When a person is paying interest in excess of 10 percent on time payments for automobiles, homes, and furniture, a forest investment returning half that rate is not very attractive. Also, the needs of current debts are often so pressing upon a small landowner that they take precedence over any non-monetary return such as esthetic or inspirational values obtained from his forest.

As Stoddard said, the return on forest investment as figured as a percentage of current liquidated value is generally poorer than most people realize. Perhaps the poor participation rate from low income groups is a good clue that the low-income forest landowner has been more rational in rejecting federal forestry programs than society has been in recommending them.

Past experience and present statistics clearly indicate that we have not yet found a satisfactory method of motivating a small private woodland owner to practice better forestry. What then is the answer? In my opinion, it is a matter of pure economics. Profit has been and still is the motivating force in American business. When timber shortages push stumpage prices higher in relation to cost with the result that tree growing will be more profitable and competitive with other investments, the small owner will begin to practice better forestry, and he probably won't until this happens.
The next logical question probably is just what type of forest management activity is actually practiced by consultants on these small ownerships. As previously stated, management practices are as varied as the individual preferences of the owners. Generally, a consultant's responsibility is to meet the landowner's economic needs in a matter consistent with good forestry practice. We continually advise landowners not to violate sound management practices; however, their individual economic desires are always controlling. Since the profit motive is the only real stimulus for promoting better management on small private holdings, we do everything possible to reduce management costs and increase profits. Most small landowners are reluctant to invest in expensive site preparation and planting. Quite frankly they generally don't have the available cash to do so. Some are reluctant to spend cash for timber stand improvement work. However, because of federal assistance some private landowners are doing it.

In summary, I believe the following will encourage the small average woodland owner to practice better forestry: higher stumpage prices, reasonable ad valorem taxes, retention of capital gains treatment of timber income, and more equitable estate taxes. The latter is most important because most people are reluctant to build up considerable land and timber values and then have the estate heavily taxed upon their death. The present estate tax structure actually discourages improved forestry practice. Please understand that the small woodland owner is typically an average person like you and me. He values morals and esthetics, but when it comes time to pay the bills and educate the children, profit is the most important factor.

You may possibly be interested in knowing that in our consulting practice we spend only about 50 percent of our total time on activities related purely to forest management. The question then arises, what do we do with the other 50 percent of our time? In order to answer this—to give you a general idea—let me outline just briefly a few projects on which we are currently working. We are appraising a right-of-way for a power and light company, we're actually acquiring right-of-way for a pipeline company, we're acting as real estate brokers on a timberland transaction between two private owners, and we're doing market value studies primarily for 631A values for three large wood-using industries. For the past week we've done several shade and ornamental tree appraisals for casualty losses, we're actively managing two soybean farms for clients who felt that they would like to be more diversified, and we supervised the clearing and converted some of the timberland to agriculture.
I would also like to point out that the larger forestry consulting firms have developed specialists in certain fields on their staff, just as the legal and medical professions have. In our firm, for instance, we have certain individuals who tend to specialize in the following: inventory and statistics, real estate appraisal, taxation and litigation, shade and ornamental tree evaluation, bottomland hardwood management, and pine land management.

DISCUSSION

Question: How do you go about contacting would-be clients?

Answer: We don't. They contact us.

Question: When you're managing a piece of property, do you look into new techniques such as remote sensing for inventory to possibly lower the cost of management and increase accuracy?

Answer: We have used remote sensing on some large inventories.

Question: Have you found the accuracy and economics to be favorable?

Answer: The primary advantage of our use of remote sensing on large inventory jobs has been that our time and expense have been cut down, because we're able to work out methods of access for large, inaccessible areas much more easily. We've done no sampling per se with that type of material. We use remote sensing primarily for access.

Question: How do you rate the FIP program as to its success or failure with small landowners? Many small landowners are unwilling to invest the 25 percent or more for tree planting or timber stand improvement. Do you think that there are other means available at the federal or state level to cope with this problem, for example to provide 95 to 100 percent funding?

Answer: We really haven't created a successful program for these people. I really don't know what the answer is. My personal opinion is that if it were 100 percent funded, we wouldn't get the participation we expect.
My opinion is that the problem is just pure economics. When tree growing becomes more profitable, people are going to do it. For example, I recently had a client call me and ask, "How much can I afford to pay for cut-over timberland today, and go out there and do the necessary site preparation, planting, and managing on a long-term basis?" Let's assume you plug in the site preparation cost, planting cost, and interest at eight percent, which the average investor would feel is a reasonable rate of return today; and that you're very optimistic about an increase in stumpage prices. I made a classic soil-value calculation, right out of the textbook, for this gentleman. Do you know what it indicated? If you're very optimistic about an increase in stumpage prices, you could figure pulpwood at $20 per cord—and that's very optimistic, because in Mississippi pulpwood is selling for the same price it did in 1957—and sawtimber stumpage at $200 per thousand board feet. The result of the calculation was that you can afford to pay only $75 per acre today for the land. Can you tell me where you can buy land for as low as $75 per acre? Now, if you're satisfied with a five percent return on your money, which few people are, you can get into the business.

Question: I understand you to mean that the economic incentives and all of its income so far have not made forestry economically attractive to small landowners.

Answer: That's the gist of it. There is no doubt in my mind that when forestry is a lot more profitable and its rate of return compares favorably with other investments, many more people will practice forestry—and not until this occurs.
PART II. INFLUENCE OF RECENT LEGISLATION ON FORESTRY PRACTICE
A LEGISLATIVE LANDMARK—THE NATIONAL FOREST MANAGEMENT ACT

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I am pleased to have the opportunity to participate in this program and particularly, to be able to talk about the National Forest Management Act. This Act has a great potential for providing a sound basis for management of the National Forests. It will require cooperation and participation by the forestry profession, by other resource disciplines, and by the public.

When I sat down to prepare these remarks, I couldn't help thinking back to the situation which existed just a year ago. Court decisions on a lawsuit involving the Monongahela National Forest had held that timber sale procedures which had been used for over 70 years were in violation of the 1897 Organic Act.

Environmentalists and the media characterized the Court decisions as a ban on clearcutting. But foresters recognized that they went far beyond this. The Court's interpretation of the 1897 Act precluded application of many of the professionally accepted silvicultural systems which are applicable to sustained-yield forest management, at least for timber sales. Wildlife managers soon realized that the purposeful manipulation of wildlife habitat in conjunction with the timber sale program was also precluded.

Based on the precedent of the Monongahela Decision by the Fourth Circuit Court of Appeals, lawsuits were quickly filed in Alaska, Oregon, Georgia, Tennessee, and Texas. It became apparent that it was only a matter of time before the entire National Forest timber sale program would be brought to a jarring halt. It was obvious that a legislative solution was needed.

But what a time to have to seek legislation!

-- It was an election year.
Key members of the principal legislative committees were announcing their candidates for President. Other members were launching their own re-election campaigns.

And, the issues for this kind of forest legislation were controversial!

The environmental groups which had initiated the original Monongahela lawsuit had done so with the objective of getting Congressional review. Through this review, they hoped to significantly reduce the role of the National Forests in meeting the Nation's commodity needs, and to place much greater emphasis on recreation and wilderness programs.

The timber industry wanted to maintain—or maybe even increase—the National Forest role in timber production.

There was a flurry of bills introduced, representing virtually every viewpoint. They included "quick fix" bills designed to maintain the status quo. They included the highly prescriptive approach typified by legislation introduced by Senator Randolph and Congressman Brown of California, which would have significantly reduced timber production from the National Forests.

They also included bills allowing broad policy direction which would not shackle the forest land manager.

The stakes were enormous. The outcome was vital to future management of the National Forests. But I think many foresters failed to see the critical importance of this legislation to professional resource management.

I wish that I had the time to review with you the details of the legislative process which resulted. The story is fascinating. In spite of the highly controversial nature of the legislation; in spite of the ongoing Presidential and Congressional campaigns; the Congress moved quickly to create a sound, comprehensive national policy for management of the National Forests in the public interest.

How was it possible to develop sound legislation under such apparently unfavorable conditions? A large measure of the credit must go to professional resource managers and their professional organizations and societies. There were differences in approach and emphasis, but the Society of American Foresters, the Wildlife Management Institute, the National Association of State Foresters, and many others sent Congress one consistent message—"give the
professional resource managers the flexibility they need to adapt sound silviculture and other management practices to on-the-ground conditions." The Congress heard this message. It provided guidelines. It established mechanisms for public participation and input into Forest Service planning and management decisions. But the Congress left the professional decisions to professional resource managers.

Many people played key roles, and any list of names would be incomplete. But I think it is appropriate to acknowledge the key roles of Chairman Talmadge of the Senate Agriculture and Forestry Committee, and Chairman Foley of the House Agriculture Committee. In a very large measure, they were responsible for creating and maintaining the non-partisan climate which made legislative agreement possible.

The National Forest Management Act marked the beginning, rather than the end, of a process. The Congress did not act to resolve all issues and controversies over National Forest management. Instead, it mandated the establishment of a planning process to resolve issues, now and in the future. The National Forest Management Act is built on the framework of the Forest and Range-land Renewable Resources Planning Act of 1974, or the RPA. While the Congress had not had time to review the first Assessment and Program submitted under RPA, it expanded the direction on preparing these documents. The National Forest Management Act was designed to insure that the RPA Program would be implemented through a land management planning process tied to on-the—ground conditions, with full public involvement.

The Act affirms a continued major role for the National Forests in meeting the Nation's timber needs. This was the issue that the Monongahela Decision attacked. This was the basic purpose for the legislation. But, it is important to view the context in which this role was affirmed.

First, the Congress re-emphasized that the National Forests are to be managed for multiple use under the Multiple Use-Sustained Yield Act of 1960.

The Congress then recognized that it must provide a basis for establishing a balance among various resource uses on all National Forest lands. So, the Act mandated the establishment of a land management planning process. The details of the process are to be spelled out in regulations, but Congress provided some strong direction:
Land management plans will be based on detailed resources inventories, which will permit evaluation of both productive potential and environmental limitations.

-Plans will implement RPA program goals.

-Plans will be prepared by interdisciplinary teams.

-Plans must recognize and display the interrelationships among various uses.

-They must assure protection of soil, water, air and other environmental values.

-The diversity of the forest will be maintained and enhanced.

-Economic and social impacts, as well as environmental impacts, will be considered in planning resource uses.

But perhaps the most important and significant guidance for planning was the direction to insure adequate public participation in forest management decisions.

I might say here that the Congress expressed general approval of our public involvement efforts, particularly the success we have had in integrating NEPA requirements into our planning process. Congressmen want, however, to insure continuation of these efforts. They also want the process formalized through regulation so that the public will be adequately informed on how to participate in the planning process.

The Congress also addressed some of the more controversial issues relating to timber harvesting on National Forest lands. By far the most controversial issue concerned allowable harvest rates for the National Forest System. It was here that the commodity interests came into the sharpest conflict with amenity uses of the forests. Spokesmen for the forest products industry lobbied hard for economic approaches. Environmentalists argued the merits of "excellent" or "ecological" forestry, as they termed it. Up until the final days of the Congress it looked as though this issue might scuttle the bill, but in the end, the Congress endorsed the Forest Service's policy of nondeclining evenflow to meet the sustained yield mandate. The Act did provide, however, for departures from strict nondeclining evenflow, provided they are in accordance with multiple-use objectives and are adopted following full public involvement. I predict that this controversy will continue as long as there are significant volumes of old-growth timber remaining on the Western National Forests.
The Congress was also aware of public concern about abuses in the application of even-aged silvicultural systems, particularly clearcutting. The members considered many proposals, but finally incorporated the "Church guidelines" on clearcutting into the legislation.

These were guidelines prepared by the Senate Public Lands Subcommittee, chaired by Senator Church, following rather intensive public hearings in 1972. We were hesitant to have those guidelines written into law because of the potential for litigation. But the Committee made some changes in the language to reduce this potential. Most importantly under these guidelines, professional foresters, working in interdisciplinary teams with other resource professionals, can prescribe appropriate silvicultural practices based on the best available scientific information and on-the-ground conditions.

The National Forest Management Act sets the stage for intensive management of our timber resources where it is economically and environmentally sound and is compatible with the land management plan. And the Congress signaled that it meant business by providing a $200 million authorization for reforestation and timber stand improvement.

The Congress also recognized significant opportunities to enhance wildlife habitat, watershed conditions, and other resource activities in conjunction with timber sale activities and related cultural work. Thus, the Act authorizes uses of funds collected under the Knutson-Vandenberg Act for such work on timber sale areas. This assures a source of funds to do needed work when it can be accomplished most economically in conjunction with sale activities.

I think I had better mention, in passing, that the problem which gave birth to the legislation was also resolved. The Act removed the restrictions the Courts had found in the 1897 Act and expanded our authority to use timber sale procedures to implement the Multiple Use-Sustained Yield Act of 1960 and the Resources Planning Act of 1974.

There are many other significant provisions of this landmark legislation. If you are not familiar with it, I urge you to get a copy and read it. In addition, the Forest Service has issued a booklet describing the history, meaning and implications of the Act. These implications go far beyond just National Forest System management.
Immediately after the Act became law, we implemented interim regulations to resume our timber sale program. In February, we published proposed permanent timber sale regulations on timber sale procedures, for public review. There was a big response to the proposal, and the comments helped us develop sound permanent regulations. We anticipate the permanent timber sale regulations will be issued late this month.

The Act gave us two years to develop regulations setting forth procedures, guidelines, and standards for land management planning. It mandated the establishment of a committee of scientists to advise the Secretary on developing this planning process.

We are well underway with this task. Proposed regulations setting forth processes for public involvement will be published this spring. We will then launch a full process of public involvement, asking people to suggest how we should implement this portion of the Act, and how they can become involved in specific proposals once they are developed. It will provide for full public involvement in developing individual land management plans.

When the Act was passed, two years sounded like a long time for developing the planning process. However, as we have begun to work on the details, the magnitude of the job has become awesome.

We have committed the full resources of the Forest Service to the job, but we can't do it alone. We need your help and the help of the people throughout the country who are interested in the management of the National Forests. I urge you to become familiar with the National Forest Management Act and to become involved.

With your help, I am confident that we can realize the full potential of this landmark legislation for providing sound management of the National Forests in the public interest.

DISCUSSION

Question: You and several of the other speakers have mentioned the public involvement which goes along with the National Forest Management Act. Earlier this year, I had the privilege of attending one of these public input meetings in Texas called a "Texas Charette." I heard all kinds of things from all kinds of people, and I wondered how much attention the U.S. Forest Service was
going to pay to this public input. It appeared to me that they were going to go along with the majority, which could allow one group to stack the cards in its favor. My question is, do you normally already have a plan in mind for the particular area involved or are you really going to do what these people want?

Answer: The public involvement and input is definitely not an eye-wash situation. It can't be and it isn't going to be. You alluded to the difficult part of the public input meetings, which is how to evaluate the comments you get. Some of them are very extreme, and there is no way to accommodate them into our guidelines. I think we do owe that part of the public whose comments are not used a good rationale as to why they are not used. On the other hand, we must be as responsive as we can to the public comments that can be used. We should lean over backwards to implement usable comments. Let me give you an example. At present we have a number of timber-sale regulations, and there is a lot of public comment going on about them. We are extremely responsive to the comments on sealed bidding versus oral auctioning for the sale of timber on public lands, and we are responsive to other comments too. If the rules and regulations can be changed so that they make sense and can be implemented, then we are going to do it.

In reference to your comment about going along with the majority for making decisions on the management of our National Forests, the comments from these public sessions and the written responses we get cannot be used in a vote-counting process. I don't think that's a good way to get results. We must in some way consider the source. For example, comments from a man who has twenty years of experience in the field and knows the problems should indeed be given credence.

Comment: I think it should be pointed out that we can also learn from those who are not experienced in the field. This is important too, although we still have to use some judgement.
Question: I would like to ask a question about the cutting budget that is coming up. As I understand it, there is to be a reduction in the cutting budget for 1978. Can you clarify why the budget is being reduced and whether or not anything is being done to get it up closer to the RPA recommendations?

Answer: As I recall, the sales program for the National Forests in fiscal 1978 is pegged at 10.25 billion board feet. At this time, the potential yield of the National Forests is about 16 billion board feet, and the RPA recommendation is about 13 billion. In the federal establishment, we go through the same type of budget process that you fellows in industry and state organizations do, and there are some dollar constraints. As the price of the budget goes up the Secretary of Agriculture and the Office of Management and Budget give us a figure on timber sales and the dollar value to go with it. Then this goes up in the Presidential budget and Congress holds hearings on it. At present we have been through the House hearings, and the Senate hearings are scheduled for April 25. There was considerable concern shown by the House Appropriations Sub-committee on the low sales for fiscal 1978. They asked us several times to submit alternative recommendations and we did so. I was asked during the hearings what it would cost to add another 500 million board feet of sales offerings in 1978.

The outcome of all this was an increase in the sales offerings to 11.8 billion board feet. So, there is an interest shown in Congress and the House did raise it.

I think the last part of your question was, what can be done about increasing the budget, or what can you do about it? I would answer in this manner. In the final analysis the program we carry out on the National Forests is a contract between Congress and the Executive. The Congress agrees that they will appropriate so many dollars to the National Forests. We made a contract with them that we will produce so many goods and services, one of which is the timber output.
Now as a constituent of your Congressman you have a good opportunity to express your needs and desires. If you feel that this figure is too low, then go to your local Congressman or through your trade association to him. Point out to them your logic of a higher or a lower sales offering program on the National Forests. I can tell you that this is an effective way of doing business.

Question: Is an Environmental Impact Statement made on a cutting unit as it is scheduled to be cut or is an overall plan made for a particular forest? Secondly, is there any economical impact statement tied into this or is it made separately?

Answer: We have tried to get away from the necessity for an Environmental Impact Statement on each individual timber sale, grazing permit, or special use permit, and handle it in a programmatic manner. The way that we have done that is to issue Environmental Impact Statements on the land management unit plan. We have issued one at the national level in the RPA and one on our resource plans, which are about ten years in duration. In other words, we'll issue a statement on our ten-year timber management plan on the forest. We think that these are major federal actions and that they are comprehensive enough to be meaningful. Consequently, we are not tackling one small timber sale versus another such that it is difficult to judge cumulative effects.

In answer to your second question, the law requires that the Environmental Impact Statements include environmental, economical, and social values, and they do. However, I'll be the first to admit that the major emphasis has been put on the environmental aspects. We are trying to bolster up our EIS's on the economical and social aspects.

The EIS process is costly. I think that last year it cost our organization about 26 million dollars to turn out our EIS's. That is a lot of money, and unless they are truly and actually used as a part of the decision-making process, that money could be better spent elsewhere. We are trying to put the EIS right into the decision-making process of the organization.
Question: Is it conceivable that the people living in the immediate locale of the sale or management area be contacted and their opinions and/or ideas be considered in the implementation of a management plan for that area?

Answer: Absolutely! I think that either the Supervisor of the Mississippi National Forest or the Supervisor of the Kisatchie National Forest would tell you that their public meetings and sessions cover the people immediately adjacent to a particular planning unit. The problem is really on the other side of the coin. How do you reach the larger public? For example, we have a Condor area out on the Los Padres National Forest in California. The Condor is an endangered species, a species of national importance. How do you get the input of the national population on the management plan for that Condor unit? In my judgement getting this national input is much tougher than getting participation from the local public.
Federal land use planning legislation is on the back burner, keeping warm but not cooking. In spite of President Carter's own expressed support for land use planning legislation, it is not high on his list of priorities. Undoubtedly, he recognizes the political realities and this is a hot potato, especially for him, because the strongest opposition to land use planning legislation is in the South. In fact, it is southern agricultural interests, southern forestry, organized labor, and the Chamber of Commerce who constitute its most outspoken opponents. I do not look for any strong push for a federal land use planning law in the 95th Congress. Nothing has been introduced as yet and no one seems overly anxious to begin the battle.

Now that I have destroyed the immediacy of my assigned topic, and have no legislation to dissect, what do we talk about? Land use planning--its inevitability, its current existence, and its urgency. It is with us now. It will become much stronger. It is needed. Nothing is more certain in our political future than controls over land use, and that's what planning is all about. And, I am talking about all lands, public and private, and about all uses of land. But, public control over the uses of private lands is the issue.

Controls of private land use are not new, even in forest management. We have long accepted restrictions on forest burning as necessary in the public interest. Burning permits are required in many states, and laws governing time, season, or extent of fire use are almost universal. Clean air standards restrict the use of fire in most states now and will become increasingly restrictive. A dozen or more states regulate forest cutting practices to some degree, with the three West Coast states exercising greatest
controls. Roadside cutting restrictions as well as streambank or lakeshore scenic strips have long been accepted. So, land use controls are not uncommon even to forestry and have become routine in other areas as well.

Municipal zoning is a form of land use control that has been with us for a long time. What it has shown us is that land use controls can be beneficial not only to collective or public interests but to the individual as well. Restrictions can work both to the benefit and to the detriment of a landowner. Would you buy a house where a hamburger joint could be built next door? But, might you not also resent restrictions that prevented you from selling your property to a developer even though he might be willing to pay a much higher price? Our urban centers would be chaos without some sort of zoning controls, yet the key to zoning has always been flexibility. Probably more political graft has been perpetrated through zoning variances than in any other facet of municipal government. Perhaps that is one reason so many people fear land use planning controls on a broader scale. Yet, assuredly, they will come.

What opponents to land use planning seem to fear most is strong federal controls. Federal regulation of private forestry has long been an explosive issue and recently has surfaced again in the form of proposals to deal with both point and non-point sources of forestry pollution that we will discuss later. Opponents to land use planning legislation loudly protested what they label a federal take-over of local zoning authority. Actually, even the strongest land use proponents do not envision federal jurisdiction, but rather attempt to set up the mechanism for effective state and local controls. All bills previously considered carefully avoided any direct reference to zoning, but that is, in fact, what land use planning is all about. Planning itself is a decision making process in which land uses are decided on the basis of public need, land capability, environmental safeguards, economics and other considerations, but, to be of any value, plans must have the effect of law. Even though actual zoning authority would rest with state and local governments, most adversaries to land use planning see federal domination in a system of standards and procedures laid down by federal statute and implemented by federal funding, with or without sanctions.

A close parallel exists with federal clean water laws and water quality standards. The states actually develop their own criteria for pollution control and set their own standards of quality and water use. However, all standards have to be approved by the Federal Water Quality Administration, which also has the
authority to withhold state grants for both treatment facilities and program administration. With permit authority for effluent limitations, however, resting with the federal establishment, the states, in reality, are not the dominant force in water pollution control. There is good reason for fearing a similar federal domination in land use planning. But, there is also little doubt that if left entirely to the states effective land use planning will be a long time in coming.

Another controversial issue in earlier debates over land use planning legislation was over the definition of "areas of critical environmental concern." Without making any differentiation between "protection forests," such as parks, wilderness or natural areas, and commercial forests, where timber use already is routine, the Senate-passed Land Use bill would have required special consideration for all forest lands as "critical" for planning purposes. It gave strong indications, at least, that preservation would evolve as a dominant factor over the wise-use concept in classification of forest lands under the planning Act. Many of our fellow conservationists, or should I say preservationists, actually view land use planning as a means of enlarging our system of parks, wilderness, scenic rivers, seashores, trails and natural areas, so it is important that the law differentiate between forest preservation and forest use. Previous bills did not do this to the satisfaction of most foresters.

Another major controversy was over "sanctions," whether or not they should be imposed on states and municipalities by the federal government for failures to perform under the Land Use Planning Act. Extreme resistance caused even the strongest advocates of federal controls to back off from sanctions in the 94th Congress. Proponents of sanctions would have the federal government withhold highway funds, pollution control grants, and other federal matching or grant funds to the states and local governments for failure to comply with minimum land use planning standards. States would be given a limited time, three years was suggested, to get their land use planning houses in order, then if they failed to act would be penalized not only in planning grants but in other federal-state cooperative funding programs as well. It still is a controversial concept, but most will agree that "sanctions" may be the only way that the federal government can force the states to move on land use planning within a reasonable time. Federal hand-outs alone are not likely to promote prompt action or uniformity of compliance. As in many areas, the carrot is often not too effective without the stick, but it goes back to the basic question of whether the whole land
use planning process is a federal or a state and local responsibility. If federal, then sanctions probably are necessary, but they will not come easily.

What many fail to realize is that federal land use planning has been growing piecemeal for a long time. We have watched new federal programs develop, one at a time, for the classification and protection of seashores, wild and scenic rivers, trails, parks, wilderness, and national recreation areas. Some, to be sure, are limited to existing public lands, but others involve either public acquisition or land use controls over private lands. River basins are planned and developed under joint federal-state programs that can exercise some limitations on use. Regional authorities plan and promote economic and environmental projects on both public and private lands. The coastal zone management law, although not yet fully implemented, calls for protection through controls of estuaries and shorelines. Soil bank and water bank laws have provided incentives for both long-term and short-term restricted use and development. The difficulty with this piecemeal approach to land use planning is that it lacks total coordination for all public needs and uses of land. It ignores balance and total needs on a long-term basis. It fails to coordinate federal planning with that of state and local jurisdictions. It solves immediate problems without looking at all options and future consequences. Commendable as these programs and activities might be in their own right, this is not the best way to decide the future of our land and water resources.

For those who might feel that total planning is the answer to all land use problems, however, we need only point to Alaska where the planning process has gone to extremes in charting the future for this vast area of public domain. Even the planning process is subject to pressures of politics, natives, commercial interests, organized pressure groups, and conflicting demands of all kinds. Where the land already is 95 percent publicly owned, it would seem a relatively simple process to plan and legislate for the future of our 49th state and avoid many of the land use mistakes made on the lower 48, but such is not the case. Major problems of checkerboard ownerships, public access, easements, and conflicting land uses already are developing in Alaska. State and federal jurisdictional disputes could not be resolved fully even when we started with full federal authority. Hopefully, Alaska will benefit from the detailed process of classification and selection under the Native Claims Settlement Act, but as long as people have different needs and desires no planning can be perfect. Under our democratic form of government, perhaps this is how it should be.
Forestry has come to the fore in two recent land use related developments which deserve closer scrutiny, because both could have great impact on vast areas and future programs. The first is the Forest and Rangeland Renewable Resources Planning Act of 1974. It calls for an "assessment" of all forests and related resources, not just on public lands but private forests as well. Purpose of the assessment is to determine present conditions, capabilities, and future needs from all forest lands as a basis for plans for achieving prescribed goals. The Administration and the Congress would be required to implement plans once they are approved to assure more favorable outputs of forest products and benefits and to fund the backlog of such neglected activities as tree planting and insect and disease control. The law does not establish federal controls over state, private, or industrial forest lands, but it does give the Forest Service, for the first time, responsibility to study all forest lands and to prepare a coordinated plan for their optimum use. It implies, at least, that all will be managed on a coordinated basis under plans and programs designed to improve and enhance all forest values. Whether it is to be accomplished on private forests through incentives or controls is not clear, but some might see it as a first step toward federal regulation. Nevertheless, it is a much more significant law than many realize and should result in increased attention paid to all of the nation's forests.

Another recent flurry of activity and debate resulted from a proposed Model State Forest Practices Act developed by the U. S. Environmental Protection Agency as a means of dealing with non-point forestry pollution. Under P. L. 92-500, EPA has a responsibility to control all pollution, whether it be from single, identifiable sources like municipalities or industries or from non-point sources such as agricultural activities or logging operations. Fearful of suggesting federal regulation of forest practices, long a subject of heated controversy, and aware of the unpopularity of land use planning legislation, EPA was searching for some answer to control of forestry related water pollution. Some would claim that reasonable logging activities are a negligible source of water degradation, but no one can deny that bulldozers operating in stream channels, careless road construction and logging slash accumulated in stream beds have caused pollution problems. Looking principally to western conditions and West Coast states, EPA came up with a draft Model State Forest Practices bill, suggesting that the states take this route in controlling forestry related pollution.

The first draft bill itself showed a serious lack of professional input. Some of its technical aspects would have been
totally unworkable in the field and impossible to apply to all forest stands of differing timber types, in all regions and with variations in slope, soil types, and other factors so characteristic of forest lands. Also, the administrative procedures proposed for state management and control of forest practices were clearly unworkable to anyone acquainted with state government. Probably most significant, however, was the implied threat of an EPA takeover if the states failed to act within a reasonable time or to perform to federal standards. Most forestry professionals became alarmed over the thrust of EPA's proposal, not that they denied forestry pollution, but because the focus of EPA's forest practices act was clean water rather than good forest management. Optimizing timber production and good land use should be the principal objectives of forest regulation if it becomes necessary, not just clean water.

AFA jumped into this controversy with both feet, and under a grant from EPA and a cooperative effort with the Forest Service and EPA conducted a series of seven regional workshops on forest practices and water quality. They produced a lot of good, solid facts on the relationship between forestry and water pollution, but more than anything else proved to EPA that forest practices regulation was not the best way to deal with such problems where they do exist, not now at least. For the time being, EPA is willing to accept "best available silvicultural practices" as the most logical way to control non-point sources of pollution. It was a 180° turn-around, but you can be sure we have not heard the last of government regulation of private forestry.

Now a controversy rages over Section 404 of the federal water quality law and the permits that are required to deal with point sources of pollution from agricultural and forestry operations. This is the subject for an entire paper tomorrow by Jeff Hughes of Crown Zellerbach Corporation, so I will leave that discussion to him. However, the implications of encroaching governmental control over private forestry activities are clear.

Without question, forestry land use planning with increasing controls shows strongly on the horizon. Will it be federal regulation of private forest lands? Will it be land use planning? Will it be state control? No one can say at this time, but the direction and the trends are undeniable. My opinion is that it will be more of all these as population pressures and demands for forest goods and services increase. The piecemeal approach already has made large inroads into our forestry base and will materially affect forest land use in the future. Incentives programs to
encourage good forest practices will continue to expand, but in themselves will not be adequate. Whether we like it or not the socialistic trend will grow with even greater government involvement in forest land management.

What is the future of land use planning legislation? I wish that I knew. It is surprising that nothing has yet been introduced in the 95th Congress. With Sam Steiger out of the Congress and Mo Udall Chairman of the House Interior Committee, I would have expected early introduction and attention to land use legislation. The Senate has always been more eager than the House and has twice passed a land use bill, but even the senior body is quiet. You can be sure, however, that neither Scoop Jackson nor Mo Udall has given up.

What can we expect if and when a new land use planning bill is introduced? I cannot say except I believe it will be a little less controversial than earlier attempts. I can tell you what I told the Congress the last time I testified on this legislation. Here are my recommendations for the essential ingredients of an acceptable land use planning bill:

1. Federal financial assistance to state and local government to assist them in establishing better land use planning systems. The amounts proposed for planning grants probably should be scaled downward and the time schedule for attaining acceptable land use planning programs should be lengthened.

2. Federal criteria for acceptable state land use planning procedures should be minimal and should emphasize that planning authority is a local and state prerogative. If federal standards to qualify for planning grants are too stringent it only confirms fears that the U. S. government is seeking to take over zoning powers of state and local governments.

3. A strong program for comprehensive planning on all federal lands and a procedure for coordinating land use between federal agencies. Our federal government should lead the way on good land use and be prepared to integrate its planning with that of state and local authorities.

4. A clear declaration of federal policy along with a strong suggestion to the states that land use rights will not be taken or denied without just compensation. Individual ownership rights should not be taken without fair reimbursement either in tax benefits or direct payments.
5. A strong emphasis on environmental protection as a major objective of land use planning. Protection of rare or fragile ecosystems, productive farm and forest land, outstanding natural or scenic areas, rare and endangered wildlife species, clean air, clean water, shoreline and estuarine protection, and much improved use of flood plains, all should be key objectives in land use planning. But, important as environmental safeguards might be, good land use must consider economic needs as well, because land and its resources must serve all needs of people. The key is balance.

6. Few will agree with this, but a workable land use planning bill should provide for gradual imposition of sanctions in the form of reduced allocations of federal funds for federal-state public works programs to states that fail to develop satisfactory planning programs within a reasonable time. Federal planning grants will not be enough in themselves and there should be some financial penalty to states that ignore their land use responsibilities indefinitely.

What about the profession of forestry and us as foresters? The challenge to forestry, the profession, to industry, to the agencies and organizations with an interest and responsibility for forest resources, is clear. We can sit back and, by default, wait for land use controls to grow, or we can guide their direction. We might whip federal regulation only to lose to land use planning or to state forest practices laws. We know that demands for wilderness, park, and other noncommercial forest uses will accelerate on both public and private lands. It is up to forestry to get its own house in order. It is only by making the best and most acceptable uses of our forest lands that we can lessen public interest in their control.

What are the approaches to land use regulation? They are multiple and they are varied, but they are here to stay. They are unpopular and they may seem un-American, but they are necessary. What form will they take? All forms and with increasing governmental authority in more areas of forestry and natural resource management. But, with vision and with professional guidance land use regulations can become valuable tools of good forestry. They need not be obstacles to good land use. They need not be economic pitfalls. They need not be the downfall of professionalism in resource management. But, the forestry profession will have to guide their direction. It will have to exert strong, positive leadership both in their drafting and in their implementation. This is the only way to turn threat into opportunity.
DISCUSSION

Question: Why do you believe land-use planning regulations are needed and imminent?

Answer: The reason they are imminent is because we're getting them piecemeal, one by one, anyway. They keep coming in the area of water quality, coastal zone management, wilderness area management, and many other regulations on land use management. Consequently, it is inevitable that we will have regulations on land use planning. I think they are needed because it is poor business to plan on a piecemeal basis.

It's poor business on our part to sit back and let the preservationists continue to make their inroads without a balanced plan which meets the needs of all the people. All uses of land must be considered. If we are going to set aside lands for wilderness, then we ought to set aside lands for timber production, corn, soybeans, and other land uses, because the American people need all of these things.

I see no solution to our problems without some good land use studies and planning. Look at what we have done on our flood plains. We have located our major cities and industries on them, and now we have to spend billions of dollars every year to bail them out because of major floods. It's a sin, really, because with proper planning they could just as well have been located on unproductive lands elsewhere.

Yes, I think they are inevitable. We are getting federal and state laws one at a time, and I think the only answer to this is to develop comprehensive plans. Maybe this isn't what we would like to accept, and I'm not advocating all of these things, but I feel it's inevitable. I think we should find something better rather than go with the approach that Congress and the states have come up with.

Question: What bothers me about land use planning is, can the federal government do it any better? For example, I don't think anyone here would say he wants to ignore safety. However, through federal legislation OSHA was created. It has been extremely costly but not extremely
productive. The Endangered Species Act is another example of federal regulations which I feel have been carried to the extremes.

Another example is that in Woody County, Alabama I drive a car which by federal law has to have a catalytic converter on it for air pollution purposes. That means I'm losing a couple of miles per gallon of gas and yet there is no air pollution problem in that county. I'm very skeptical that the federal government can do a better job. They haven't shown me from past examples that they can.

Answer: That is a very good point and doesn't really require a response.

I don't think that the federal government can do a better job, but it's inevitable that the federal government will play an increasing role. It's just a fact of life. I didn't recommend it and I don't especially approve of it.

I think it should be made clear that land use planning is basically a state and local responsibility, but this won't come without a federal push in the way of financial help and some form of minimum requirements. In my opinion, the alternatives such as piecemeal planning, no planning at all, and the encroachment on our forest lands will be worse.

One thing we can do as professionals in the resource field is to guide the direction of land use and land use management. If we are making mistakes in our professional management of lands, let's make sure that they are more publicly acceptable so that there will not be demands to take these responsibilities away from us.

Question: Will this increase in planning, whether it is done at the federal, state, or local level, cause an increase in the cost of forest products? If so, can we afford it, and how far can we go with land use planning before it gets beyond what the forest industry can afford?
Undoubtedly, anything that will involve the investment of time and manpower will cost money. The only thing that will pay for it is the end product. However, I don't think that we should look at it strictly in terms of a financial investment. It is more a matter of looking at alternatives and uses. If I thought that land use planning was going to be handled like the Environmental Impact Statement, then I would say, let's stay as far away from it as possible. The EIS is a good example of a well-intended tool with good purposes and objectives behind it. But it's been misused almost to the point of making it unworkable. The Endangered Species Act is another prime example. I hope that land use planning doesn't take the same route.

I agree that federal programming is inevitable and that it will cause problems. However, when you go back to places that you enjoyed in your youth and find that they totally changed due to development pressures, you have to realize that this isn't the result of federal planning but it is the result of development interests. These private development interests rather than cohesive community planning are determining our fate. I would resist federal planning, but we do have the need to zone and to define what we want done with our finite land and water resources.

Yes, you don't have to look far to see the lack of proper land use management. This is a problem.

I think that what you are talking about now has a lot to do with population expansion, and in fact perhaps we should be talking about population control as well as land use planning. We just can't have twice as many people on a finite piece of land and continue to utilize it the same way.

We certainly should start talking population control. In some places it's too late. I don't know how many of you read American Forests, but about three months ago I had an editorial in it that was prompted by a recent trip to India. In all my life, I have never had anything hit me in such a depressing way as the impact of the number of people over there. I came home determined that we can't let that type of thing happen in this country. Over-population and the demands and pressures
of people will destroy our resource base quicker than anything that I know of. That's what is happening to us.

Question: Can you give us an example of what you classify as the improper use of the Environmental Impact Statement?

Answer: I think the 25 million dollars that the U.S. Forest Service spent in developing their EIS last year is a good example. This is an exorbitant sum in terms of the needs of that agency. I would rather see that money go to a few other things.

Another example is the control of blackbirds on Fort Campbell, Kentucky. I spent a whole weekend wading through the EIS on that particular situation. It was unnecessary work and time spent merely to satisfy a requirement of the law, because it really didn't mean much. An EIS doesn't decide whether a project will be carried out; it is merely a requirement that one be prepared before a project can be approved. This is the type of thing I'm talking about. There are several EIS's that are totally beyond comprehension in respect to manpower, printing cost, paper, and money spent to have them done. I've had them delivered to me in cardboard boxes. And yet overall they really don't mean much when it comes down to deciding whether the project should be approved or not.
The role of forests in the Southern states is too well known to require much discussion or statistical elaboration. They provide not only the raw material support for many important wood-using industries, but of equal importance, they affect water and air quality, provide habitat for wildlife and a base for outdoor recreation and other environmental amenities.

One of the major problems facing all states is to develop programs which will assure that their forest lands are protected, developed, and managed to provide both the economic and environmental benefits which are vital to the public interest. There is a growing trend in the United States towards state regulation of forestry cultural and logging operations to accomplish these objectives. The legislation that has been enacted or proposed in various states is frequently called a "Forest Practices Act." The laws vary greatly from state to state (1,2) depending upon the particular problems of forest condition, environmental values, and forest operations present and the proposed means for their solution. Some depend upon voluntary compliance with guidelines of operation, some require notification before starting operations, some require permits, and some provide penalties for violations of the legislation (3). All seek the ultimate goal of the protection and enhancement of the forest resource base.

A second important function of State Forest Practice Acts is to assure that state programs meet the requirements of the Federal Water Pollution Control Act amendments of 1972 and that the state fulfills its obligations under this law (4,5). This public Law 92-500 (86 Stat. 816-904) is worthy of careful study by foresters for its potential influence on forestry operations. It will be
discussed in detail tomorrow morning, but let me point out briefly the major goals and pertinent sections as they relate to State Forest Practice Acts.

The law sets up two general goals for the United States (4):

"1) to achieve whenever possible by July, 1983 water that is clear enough for swimming and other recreational uses and clear enough for the protection and propagation of fish, shellfish and wildlife,

2) and by 1985, to have no discharges of pollutants into the Nation's waters."

The law, eighty-nine pages long, provides for a coordinated series of specific actions that must be taken by federal, state and local governments and by industries—with strict deadlines and strong enforcement provisions. The states have primary responsibility to prevent, reduce, and eliminate water pollution. If they do not or cannot do this the federal government through the U. S. Environmental Protection Agency is empowered and directed to take action.

One section of the law (86 Stat. 841, 208F) requires the development of a state area plan with annual certification "which shall include...... (F) a process to (i) identify if appropriate agriculturally and silviculturally related non-point sources of pollution......, and (ii) set forth procedures and methods (including land use requirements) to control to the extent feasible such sources."

Section 304(e) (2)A provides further that the "Administrator (Environmental Protection Agency)......shall issue......within one year after the effective date of this subsection (and from time to time thereafter) information including......(2) processes, procedures, and methods to control pollution resulting from......silvicultural activities, including runoff from......forest lands."

EPA's role in controlling non-point sources of pollution is then twofold (5):

1) to influence states and federal agencies indirectly through information and technical assistance, and

2) to use direct influence through regulation if states fail to comply with the law.
Major silvicultural non-point sources of pollutants are road construction, logging activity, site preparation, fertilization, prescribed burning or wildfire control, and pest control. The major pollutants are soil sediments, toxic nutrient elements from fertilizers and fire retardants, thermal pollution, and pesticides (7).

The major conclusion that may be reached is that the states must control silvicultural non-point source pollution; and if they fail, the Environmental Protection Agency must by law regulate the discharge of pollutants from silvicultural operations. What this means in terms of actions required of each state or what federal regulation may occur is not clear at this stage of the game.

It may be of interest to briefly describe what action North Carolina has taken. The ownership pattern of commercial forest land in the state is similar to that of other Southern states in that we have 80 percent of the forest land owned by farmers and other miscellaneous owners (8). There are some 250,000 of these small private forest land owners (9). Future timber supplies will depend to a major degree on what is done on these lands. Any program of forestry must concentrate on this ownership group.

As has been pointed out, in the South only eight percent of these lands are intensively managed, and 15 percent are held for purposes other than timber production (10). One third of the owners have some interest in timber growing and manage their forests under extensive forestry, unplanned or accomplished at random. Approximately one half of the owners have no interest in intensified forestry practices. Most are more interested in obtaining periodic income from selling timber than in making forest management investments.

In 1973, the North Carolina General Assembly directed the Secretary of the Department of Natural and Economic Resources "to conduct studies, hold hearings, and make recommendations to the 1975 General Assembly concerning legislation:

1) Designed to assure the continuous growing and harvesting of forest tree species and to protect the soil, air, and water resources, including--but not limited to--streams, lakes, and estuaries..." and authorized the Secretary to: "appoint a Forest Practices Act Study Committee for the purpose of holding hearings and making recommendations to the Secretary concerning the purposes of (the) Act" (11).
The eleven-man study committee composed of private forest landowners, industry representatives, business men, educators and research administrators spent a total of 454 mandays on official duties related to its charge. The committee familiarized itself with existing state and federal legislation, forest practice regulation in other states, and public issues surrounding forest practices regulation. Trips were made to Washington, Oregon, California, and Maine to observe forest practices and the administrative approaches to forest practice regulations in these states.

Field trips were taken in North Carolina to observe techniques and methods being used in forestry operations and their impact on the resource and the environment. Four public hearings were held at strategic locations to obtain ideas and suggestions from the public relative to the status of forest practices and the need for forest practices regulation in North Carolina. The committee also involved the Department's Division of Forest Resources in a statewide survey to evaluate the present status of forest practices and their short term impact on the forest resource and environment.

The experience in North Carolina may be of some help to others who become involved in developing forest practices acts. The following is a partial list of the conclusions of the committee's work and brief comments about them (9).

"A. The complexity of designing and administering a comprehensive forest practices act justifies greater time commitments for study and formulation than have been available to the committee."

It is pertinent to note that the development of forest practices acts in other states have required several years of work involving legislative activity, committee appointments, guideline establishment, and administrative implementation. Cooperation among concerned state and private groups is necessary to make the regulatory process work smoothly and there must be a unity of philosophy and purpose on the part of all units involved. Where clear lines of authority were spelled out in the acts, good interagency cooperation was possible and a workable, effective program resulted. Where cooperation was lacking, lawsuits, confusion, and a cumbersome program resulted.

In North Carolina the General Assembly in 1975 passed the Forestry Study Act (12) continuing the study of forest practices. Citizen advisory committees in each of the three geographic regions of the state (Coastal Plain, Piedmont, and Mountains) were
established to recommend forest practice standards to fit the individual conditions existing in their areas and advise the State Forestry Council on other technical matters.

"B. Voluntary compliance with standard guidelines for forest practices is preferable to enforced regulation. A program of education, training, and financial incentive to encourage compliance is desirable. However, regulation must be considered if voluntary compliance fails."

It was evident from testimony given in the public hearings held in North Carolina that a strong regulatory law would not be supported by a majority of the wood-using industries, the general public, or the state legislature until voluntary compliance was tried. The results of the California Forest Practices Act (13) influenced the committee's judgement in this matter. The California Act covers a wide range of regulation and enforcement activities. For example, to meet the requirements of the law, four field inspections are required for each harvesting job, and it appeared that the state forestry personnel were being forced to switch from a philosophy of service to the landowner to that of enforcement as police officers.

Whether the Environmental Protection Agency would consider a state program of voluntary compliance as satisfying the requirements of Public Law 92-500 is not certain. EPA did submit a suggested Forest Practices Act to the Council of State Governments for inclusion in its volume of proposed state legislation. The Act had strong regulatory and enforcement procedures taken largely from the California and other western legislation. Opposition to adoption of the model was widespread and the Council of State Governments rejected it.

However, it is noteworthy that the Corps of Engineers has issued to those states with regulatory forest practices acts general permits for jurisdiction of the placement of fill material in conjunction with culverts and bridges for silvicultural road crossings of navigable waters. Forest landowners and operators in other states without these laws must apply individually for permits from the Corps as provided under Section 404 of P.L. 92-500.

In North Carolina the large number of small private forest landowners (nearly 250,000) and the number of "operations" each year (about 25,000) make a tight, comprehensive system of permits, inspections, reports, and appeals impracticable (14). The cost and work load of administering such a system would be very great.
Currently the Forestry Council is working on a program to train, control, and reward operators to minimize the unfavorable impact of logging, site preparation, wasteful utilization, and site degradation on the environment. Although these impacts were found to be of a local and sporadic nature in the state, they are of sufficient concern to warrant continuing study and efforts to correct them.

There is a backlog of approximately 2,000,000 acres of potentially productive forest land in North Carolina needing forestation (14). Each year an additional 130,000 acres is being harvested without being regenerated to productive capacity (14). A Forest Development Act is now being drafted (it has now gone through nine revisions in an attempt to satisfy all groups interested in the law). It will provide a program of financial assistance and cost sharing for landowners to defray some of the long-term costs required to establish and grow stands of timber. Provision will also be included to expand nursery operations to meet the anticipated additional demand for planting stock. The landowner must abide by the provisions of a management plan which will protect the soil, air, and water resources in any forest operation. The proposed Act will be financed by an assessment or tax on North Carolina-grown forest products levied on primary forest processors.

It should be obvious that each state's problems, needs, and solutions to forestry problems will vary, and any forest practices act will have to consider the diverse and varied forest regions that occur within the state. The biological, economic, legal, and sociological restraints encountered must be evaluated when adopting standard operating procedures, guidelines, or regulatory measures. The current status of forest practices acts in the South is difficult to determine, but only Alabama (15), South Carolina (16), West Virginia (17), Virginia (18), and Texas (19) have published documents or passed legislation to control forest practices. Doubtless the other states are in the process of developing them since the deadlines and controls set by EPA under Public Law 92-500 face all states. It is informative to read the interview with EPA Administrator Russell Train in the October issue of American Forests (20).

The following statements are pertinent to this discussion:

"Q: What happens if a state fails to meet its responsibility under the 208 process? For example if they fail to submit an approvable plan by the deadline. What sort of response can EPA make in such a case?"
"A: We hate to start thinking in terms of failure. Obviously it is conceivable that there will perhaps be some failures as we go ahead. We do expect states to place a very high priority on developing effective programs. ....There's no question that if states fail to submit plans or fail to submit a plan that can be approved, there is a possibility in the long run of sanctions of various kinds.

One kind of sanction which the states should keep in mind is the possibility of citizens' suits in the event there is a failure on the part of the state. ....And finally, if states should decide not to develop appropriate programs to meet their needs, it's likely that Congress—based upon its past performance—would develop national requirements for non-point sources. ....Uniform national standards become very rigid. So it is incumbent on the states to pick up this ball and run with it, because the alternatives are really not very promising."

George H. Weyerhaeuser in the Weyerhaeuser Corporation's 1976 Annual Report further punctuates the problems faced by industry. He states (21):

"At the same time, however, there are many external costs beyond our control. The nation's pollution control regulatory system is the captive of inflexible legislation. It is too dependent upon the uniform installation of prescribed technology regardless of whether or not that uniform technology will improve, have no impact on, or cause deterioration of the specific environments involved.

We are working along with other segments of industry and with municipalities, to attempt to have the emphasis of this legislation and regulatory system shifted. We believe that environmental clean-up must proceed—but that it must proceed in less wasteful, and much more efficient ways. To us, the test of regulatory success should not be the amount of hardware applied to the pollution control effort. It should be, instead, the degree of improvement in water and air quality in specific environments. That is, after all, the underlying public need that environmental regulation is attempting to meet.
The uniform-technology approach may have been necessary in the effort to launch and administer a crash program. But we think the Congress should now reexamine our present program, and direct the nation's further efforts much more specifically to the environmental needs of local and regional airsheds and waterways."

This message comes through loud and clear. Time is short, and if the forestry profession doesn't assist in creating viable forest practice acts, someone else who may have little knowledge of the problems involved will. It is better to act than to react.

LITERATURE CITED


DISCUSSION

Question: Will you distinguish more clearly the difference between the yield tax proposed by the North Carolina legislature and a severance tax?
The proposed tax is a severance tax amounting to about 75 cents per M bd. ft. of pine, 50 cents for hardwood, 20 cents per cord for pine pulpwood and 12 cents per cord for hardwood pulpwood. These funds will go into a revolving account to help pay for getting lands back into production. Surprisingly enough, the state and many of the wood industries agree that we are approaching a point where there will be a gap or shortage in the supply of raw materials for wood products. Since the intended use of the proposed tax funds is to help develop a major source of raw materials, the industries are willing to back it. There will be a matching of industry funds plus legislative funds that will go into this program when and if it passes.

Question: Will this be a one-for-one matching of funds?

Answer: No, it will not be a one-for-one matching of funds.

Question: In reference to the law proposed in North Carolina, will industry be able to dip into the revolving fund or will it's use be limited to certain-sized landowners?

Answer: There will be no limit on the size of landowner that can use these funds.

Question: When we talk about supporting forestry programs with taxes we almost always speak of the landowner and the forest industry being taxed. I'm curious as to why we couldn't consider taxing forest products at the retail level. I know this wouldn't be popular and would be resisted. But it would give us a broader tax base and more money, and the public would become more interested and appreciative of forest products.

Answer: You may have a good point. However, no matter who, or at what level a tax is levied, you, I, and John Q. Public end up paying for it in terms of higher prices, simply because when possible this extra cost is passed right up the ladder to the person who buys the end product.

Question: That is a good point in support of taxing at the retail outlet. The consumer is going to pay for the tax anyway, so why not let him know he is paying for it when he buys the product and we'll get the other advantages too?
The challenge of state foresters today is to get in there and make some input into these state forestry practices and land-use planning laws—help shape and develop them. Otherwise they will be imposed upon us. I think this is really an important point. We as professional foresters can't just let these laws go. We had better jump in and get some input into them.

If we have laws that prove to be counterproductive and detrimental to the original intentions of Congress, can't they be repealed?

We can certainly change the laws. This is another possibility. If you get enough pressure you can change the law.

Maybe what we need to do is obtain a lot of publicity as to the inevitable nature of some of these laws. I believe the general public in the U.S. will resist the idea that these laws are inevitable.

My only comment on this is that the California law was not drawn up by foresters. It was drawn up by people who live in urban areas, and they have the majority of the votes. The law sticks, and I don't think you are going to get it changed without persuading the public in the urban areas of California that it is not good. So you had better watch what comes up in legislation, because it may be important to your future as a professional.
LOGGING SAFETY IS MOTIVATING HUNDREDS OF LOGGERS ... ONE AT A TIME

Arthur W. Wimble
American Pulpwood Association
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Safety is a basic human need. At the work place it is both a natural reaction and one's right to guard against existing uncertainties. Furthermore, it is necessary to the continuation of an advanced civilization that standards, laws and regulatory and enforcement agencies be created. The Occupational Safety and Health Act of 1970 (OSHA) was designed and enacted with this purpose in mind.

OSHA

OSHA requires safe and healthful working conditions for all. Employers are required to furnish a safe employment environment—in short, "Comply with the Occupational Safety and Health Standards promulgated under the act." The employer must "furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or that are likely to cause death or serious physical harm to his employees." Although the employees are the protected ones, they also have certain duties imposed upon them by the act. "Each employee shall comply with occupational safety and health standards and all rules, regulations and orders issued pursuant to this act which are applicable to his own actions and conduct."

During OSHA's early years, the Act provided a revived awareness not only for the employer but also for the employee to obey safe work practices and use protective equipment. The Act gave logging safety people a new motivational tool. Workers began to wear hard hats and safety shoes, and protective canopies were built on logging tractors. Unfortunately, the impetus with which OSHA began has not had a lasting and significant effect on the prevention of injury and death in the woods.
STANDARDS DEVELOPMENT

Within the Act, several provisions were made for the development of three types of safety standards; included were interim standards, permanent standards, and emergency temporary standards. The following discusses only the first two types since they are most relevant to logging operations.

Interim standards were issued within the first two years beginning with the effective date of the Act, April 28, 1971. Interim standards took the form of either national consensus or established federal standards. The pulpwood logging standard is an example of a consensus standard developed through ANSI (American National Standards Institute) and adopted by OSHA.

The administrative process for developing permanent standards was also built into the Act, providing a means by which the Secretary of Labor could determine, based on input received, when a standard should be issued, modified, or revoked.

The most striking difference between interim and permanent standard development is that the period of time between petition for promulgation and resulting regulations is considerably longer than experienced during OSHA's first two years.

Permanent standards development relies heavily on national consensus standards development and also criteria documents for work practice standards developed by NIOSH (National Institute for Occupational Safety and Health). NIOSH was established by OSHA for two main purposes: One, to develop recommended safety and health standards and two, to provide research and training. NIOSH has written documents for almost every conceivable field of employment, including logging. Few, if any, have been promulgated into regulations. Permanent standards may also be proposed by trade associations, institutes, consulting firms, etc.

Many proposed standards arrive daily at the Department of Labor, and even though OSHA is a large organization, it hasn't developed a quick and efficient means of dealing with them. When a proposal is received, it is literally placed at the bottom of the pile, and unless some unusual pressure is brought to bear, won't receive action until it reaches the top. Once a proposed standard surfaces, it is still a long way from becoming a regulation. Committees must be formed, public review held, and testimony received. In short, the procedure is long.
OSHA PAST

Unfortunate or not, the fact remains that during the last four years, no safety standard development action has been completed by OSHA. This was due primarily to the direction of past OSHA leadership. More priority was given to health rather than safety and explains much of the recent activity and confusion in the area of health standards development.

The current Secretary of Labor has identified four major problem areas OSHA has had, and although he states that "the occupational safety and health Act of 1970 is a good piece of legislation, the last six years of activity in OSHA have resulted in chaos." There have been problems in the lack of continuity of leadership, clearcut enforcement strategy, inadequate cooperation with labor unions, business, press, and the general public, and a shortage of technical staff.

OSHA PRESENT

The new Assistant Secretary has identified concern for remedying the lack of education about safety and health, increasing the number of trained personnel, breaking the log-jam of OSHA health standards, and simplifying standard language.

The simplifying of the language has been an obvious first step for a long time. Logging workers, their employers, and corporate safety executives have difficulty in understanding the federal register especially as applied to OSHA.

When reflecting on the new Assistant Secretary's future goals in education, it's not immediately evident who has been short-changed; is it the employee, the employer, or the OSHA staff? All are suspect. Explaining to OSHA personnel just what a logging operation looks like and the business of logging is a major first step.

Breaking the log jam of existing health standards (such as noise) may be an almost impossible task when considering the bureaucratic tangle that exists in the entire process.

MOTIVATION FOR SELF PRESERVATION

Standards, laws, and regulations will not make logging safe. Getting logging safety to the stump is the only way and it is everyone's job. There are as many unique methods as there are people responsible for the process.
Many logging safety personnel can be referred to as "let's be safe" people. They hang posters, show films, read and write safety books and present awards for slogans and the greatest duration of time since the last lost-time accident. Basically, what this whole process does is to tell the worker to be safe, and unfortunately, this doesn't tell him very much. We must learn to tell him how to be safe and we must also learn how to motivate him to care.

Considering other types of employment, logging safety has a feature that is unique—the environment of the work place. It is hostile, uncontrollable, and unpredictable. The logging industry is an important industry in the U. S. However, it has no roof, there are no safety bulletin boards, and no conference rooms where safety committees can meet. Because of this, communication techniques are limited. Armed with the current knowledge about work practices and existing safety devices, it is the job of every employer, every extension person, every educator, every association man, and others to "sit on the stump" with each logger trying to raise his level of concern for his own survival.

Logging safety is everyone's job but it should be pointed out that it is inappropriate for an industrial forester to provide instruction to independent logging contractors. Independent contractors are employers and it is therefore their responsibility to provide safety instruction to their employees. It is, however, appropriate, through associations, schools, extension agencies, etc., to provide information and education material and programs on logging safety.

Motivation is the key to both increasing production and safety awareness. The worker must not only be informed of work practice standards, but he must also be motivated to be able to distinguish the consequences between doing it the right way and the wrong way.

Some of the following wording is included in the pulpwood logging standard: "A protective roll-over structure shall be provided for mobile equipment used to transport trees or logs from the stump to the landing,"—many workers continue to suffer injury or be killed due to improper roll-over protection.

"The distance between workers shall be at least twice the height of trees being felled,"—cutters continue to inadvertently drop trees on one another.
"Lodged trees shall be identified and grounded mechanically, with animals, or other safe techniques before work is continued within two tree lengths of the lodged tree,"—lacking fear, education, concern or whatever else, loggers continue to be crushed to death by the unexpected falling of a hung tree that couldn't possibly come down.

Depending on the worker and the type of job, we can usually motivate for higher production by monetary rewards. Motivational and goal setting techniques applicable to production increases are also consistent with improved safety performance.

Personal contact with the logger is indispensable. Those responsible for safety motivation must fully understand the people they're working with, including social backgrounds. It has been found that knowledge of the educational level of the worker is especially important when setting goals for improvement in production and safety. It was revealed in a study (2) of uneducated and educated workers that the uneducated workers often set higher goals and achieved higher productivity when they themselves were involved in participative goal setting. Educated workers, however, had similar results when the goals were set by the supervisors. Also, in a similar study (1) of 292 independent pulpwood contractors, it was found that supervision that included staying on the job with the men, giving instructions and explanations, providing training, and setting specific production goals led to job success. That is, cords per manhour were high and the injury rate was low. Numerous other industries and organizations have had similar results of increased production and improved safety by bringing the worker and the supervisor into the planning and goal-setting process as participants and resources.

LOGGING SAFETY RESEARCH

Everyone involved in motivating for logging safety carries a large bag of tricks including information about equipment design features, personal protective devices, and work practices. Unfortunately, this bag is by no means full and more research and development is required to fill the void.

There is little ongoing cooperative logging research in the U. S., and logging safety has received even less attention. The research and testing that has been conducted has been related primarily to equipment design and personal protective devices.
Chain saw-related injuries have continued to rise, and chain saw kickbacks have been responsible for many of these statistics. The Scandinavians have been leaders in research in this area and other countries are catching up. The development of the chain brake, a device which almost instantly stops a moving saw chain during a kickback accident, has been revolutionary. Other devices, also helping to prevent kickback injuries, have been developed by foreign and U. S. manufacturers.

Anti-kick saw chains have been produced by several manufacturers and have been with us since the early '60's. Many of these early safety chains made boring cuts difficult and reduced cutting speed. Through research and development and new manufacturing techniques these limitations have been almost eliminated; in fact, some of the new safety chains are said to be even faster than conventional ones.

Vibration is also considered a potential source of health problems for loggers. Anti-vibration systems are built into most new saws and greatly help to reduce operator fatigue and will hopefully prevent or lessen the occurrence of health problems such as "white fingers."

Although chain saw mufflers have been improved greatly, the noise level of most saws still presents many problems for research. The stumbling block rests in developing correlations and criteria for intermittent noise exposure.

Personal protective devices also require extensive research and development. As an example, ballistic nylon has been used to protect the logging worker against chain saw cuts, and tests have demonstrated that in many instances this material is useful in preventing cuts or reducing their severity. There are still many problems association with the use of this type of device: How should a logger either wear this material or attach it to his clothing; can it be done in such a way as not to inhibit movement and quickness; can it be made acceptable in all climates?

There is one key area of logging safety research that has received little or no attention. The area is work practices. What is it about the way a logger does his work that inevitably gets him into trouble? We must continue to test old work practice standards and develop new ones. Most importantly, the logger must be included in this process by taking standards development to the woods.
We need better data and statistical information. Most data collection has consisted of counting injuries. We still don't have a good handle on what it is a logger does, what it is about his environment, or personal background that so often results in accident and injury. During the last few years, several research projects have been proposed to develop such correlations between injuries and work practices. It has been difficult to develop both interest and funding to put these projects into action.

SUMMARY

All independent logging contractors, all industrial logging operations, and all logging workers have a responsibility to be concerned with and aware of OSHA and its many standards and regulations. Real safety in the woods, however, is much more subtle than obeying rules and regulations. Raising the logging worker's consciousness as to limitations in his own abilities, unsafe acts or conditions, accidents and the probability of resulting injury and possible death is the key to improving safety in the woods.

LITERATURE CITED


DISCUSSION

Question: Is OSHA making any efforts to become a service organization rather than a search organization?

Answer: Legislation has been introduced that would enable an employer, who suspects that he may have problems with his work place, to have OSHA come in and evaluate his area much like a consulting service. This wouldn't necessarily lead to an inspection later on. That's not the purpose of it. The people at the ground level in OSHA have a very serious involvement in safety, but unfortunately the current process doesn't allow for this type of contribution. It's just too complicated and too bogged down in red tape.
Question: Should OSHA criteria be developed on a national or on a regional basis?

Answer: Actually the regulations do apply on a regional basis, because the regional OSHA teams are making the inspections. Hopefully, they are familiar with the kinds of logging, sawmill, and other plant operations that are unique to their area. Now, what you are speaking of is whether a national standard or set of regulations can be regionalized. My opinion is that if you try to regionalize the regulations, and we have attempted it several times, the situation becomes more complex and in the end does not result in safety improvement. The NIOSH criteria document which I alluded to during my talk is now somewhere in the Department of Labor. When it surfaces many other pieces of information, including some of the work we are doing on revising the pulpwood logging standards, will also surface, as well as the information provided by many of you in your reviews and in public hearings.

Question: What is the status of the noise regulation, particularly as to lower allowable decibels?

Answer: There is much confusion now about the noise standard. I don't think anyone knows where it is or where it's going.
PART III. ENVIRONMENTAL CONSTRAINTS ON FORESTRY PRACTICE
Here is a little of the background of Public Law 92-500 and how it is gradually and surely making itself felt.

Section 518 tells us that this Act may be cited as the "Federal Water Pollution Control Act," so let's refer to it by that name.

In October, 1972, Congress overrode a Presidential veto to make the Federal Water Pollution Control Act (FWPCA) law. This Act is one of the most complicated measures ever passed by Congress. Water pollution control, by law, requires a series of administrative actions by federal, state, and local governments, under tight deadlines. States are assigned primary responsibility for water pollution control and enforcement, but the Environmental Protection Agency (EPA) is the administering agent, and states function within the framework of a national program.

Two national goals set the pace for the program: (1) for point sources, the elimination of pollutants discharged into navigable waters by 1985, and (2) wherever attainable, the development of an interim level of water quality by 1983, for both point and nonpoint sources, that permits swimming and fish propagation, commonly referred to as "swimmable and fishable."

In defining the responsibilities of federal, state and local governments regarding point sources, FWPCA clearly described a point source. Nonpoint source control requirements are not so clearly defined, however, leaving much to administrative interpretation. The federal role in the administration of nonpoint source control programs involves: (1) national planning and coordination of state programs, (2) development of information on the control of nonpoint sources, and (3) providing funds for
state and local programs. Section 208 of the Act requires the development of "Areawide Waste Treatment Management Plans" for both point and nonpoint sources. (The plans may provide for land use zoning and other controls to prevent water pollution.) Plans prepared under Section 208 must include:

"... processes to (I) identify, if appropriate, agriculturally and silviculturally related nonpoint sources of pollution, and (II) set forth procedures and methods to control to the extent feasible such sources."

Geographic areas in each state which have significant water quality problems must be designated by the governor, and a guiding agency established to study and formulate a program to eliminate these problems. The remaining portion of the state, so called non-designated areas, must arrive at a plan to maintain or upgrade current water quality over a 20-year time frame. These agencies have until November 1, 1978, to formulate the plans of abatement. Each year the plans will be updated to cope with changing requirements.

Water standards which are set by the state water quality agency will be reviewed every three years. At the present time, the water standards as set for the point source will be the standard for the nonpoint source as well. The Environmental Protection Agency has an inter-office contract with the U. S. Forest Service to study water quality measurements with the objective to suggest a feasible water standard for nonpoint sources.

After November 1, 1978, regulatory or management agencies in each designated area will be appointed to control all point and nonpoint sources in the area. They will enforce the area-wide plan which was developed. The state plan will be watched by the forestry industry, and the water quality will be rigorously monitored. If there is a problem and the conditions causing the problem are not improving, each year new requirements will be tacked on until satisfactory water quality is established.

Before we get too far, let's take a quick glance at the nine sections of the FWPCA as it affects silviculture:

Section 201 -- Provides assistance and requires development and implementation of waste treatment management plans and practices (primarily affects sewage treatment plants).
Section 208 — Requires the development and implementation of area-wide waste treatment management plans and agencies to regulate them. Will control nonpoint runoff from silvicultural sources. Good forest management practices will be the voluntary vehicle used to control runoff under this section.

Section 303 — Requires states to establish water quality standards for all streams in the state and develop implementation plans to attain and maintain these numerical limits. Upgraded every three years.

Section 307 — Regulates toxic substances and pretreatment effluent standards.

Section 308 — Governs the right-of-entry, inspection, and monitoring by EPA or their designated representatives.

Section 309 — Covers federal enforcement, fines, and imprisonment for violators.

Section 311 — Covers oil and hazardous substance spills, and the requirement for a spill-prevention control and counter-measure plan.

Section 402 — Requires a permit (NPDES) to discharge point sources into a water of the United States. Log spray pond discharge is covered under this.

Section 404 — Requires a permit from the Corps of Engineers to fill or dredge in a navigable water of the United States and its associated wetlands. (Navigable has been defined as greater than five cubic feet per second.)

Now let's zero in on the two sections I have been assigned to discuss today—208 and 402.

First, let's look at 402. Many timberland owners this past year joined with the forest industry nationwide to provide information to the EPA advising that most forestry-related activities can be nonpoint sources in nature. The EPA has issued
final regulations defining point sources in the category of silviculture to include only four activities: Rock crushing, gravel washing, log sorting, or log storage. Nursery operations are included under the category of agriculture. The final regulations, therefore, appear to identify four activities in silviculture and one in agriculture that are already defined by EPA as point sources in other categories and make clear that they are also to be considered point sources when carried out as a part of forest management operations. These activities require a point source (402) permit.

Experience has already indicated that one should allow three to six months from time of application to receipt of permit. Permits are made out for a five-year period with a mandatory quarterly report indicating continued use, the monitoring of water quality, and any changes in conditions of permit.

Section 402 is well defined compared to Section 208, and I don't believe there is much hope for any further changes for procedures involving silviculture point sources.

Now let's look deeper into Section 208. Section 208 of the FWPCA program has not directly affected forest landowners so far but, in the long-term, this program could have the greatest impact on forest landowners. Let's review—we have already pointed out that Section 208 requires development of "Areawide Waste Treatment Management Plans" for both point and nonpoint sources. Plans prepared under Section 208 must include:

"... processes to (I) identify, if appropriate, agriculturally and silviculturally-related nonpoint sources of pollution, and (II) set forth procedures and methods to control to the extent feasible such sources."

In 1975 and 1976, the American Forestry Association and the U. S. Forest Service co-sponsored seven water-quality workshops. As a result of these workshops, EPA changed its emphasis from State Forest Practices Acts as a method of controlling silviculturally-related water pollution to Best Forest Management Practices, commonly called BMP's.

I am happy to announce a recent action at EPA. Mr. Eckardt C. Beck, Deputy Assistant Administrator for Water Planning and Standards, signed and sent out to all regional administrators a memorandum draft which set forth the requirements for the development of regulatory and other programs at the state and local
level under Section 208 of FWPCA or PL 92-500 to control nonpoint sources (NPS) of water pollution. Other programs can be voluntary in nature; these can be education, technical, or financial assistance, incentives, the utilization of techniques and/or institutions, and if necessary, BMP's.

Now, let's look closer at Mr. Beck's memorandum. The purpose of the memorandum sets forth the requirements for the development of regulatory and other programs at the state and local level under Section 208, PL 92-500, to control nonpoint sources (NPS) of water pollution. Note other programs. EPA has used the term other programs to allow the Regional EPA Administrator together with the states to have more flexibility in developing a 208 state plan. Had not several people in our industry and particularly NFPA staff been persistent in presenting our position on a non-regulatory control program, we might be in the defensive posture of fending off regulatory programs, i.e., forest practice acts or a complicated set of Best Management Practices to control water quality.

Then, in the memorandum under the heading of POLICY it is stated that a regulatory program is required and shall be submitted for approval as part of a 208 plan in those cases where the 208 agency, in consultation with the Regional Administrator, has determined that it is the only practicable method of assuring that a NPS program is implemented. Such a determination shall be based on economic, technical, social, and environmental factors.

This policy gives emphasis to the fact that there may be another way of assuring a practicable program that will attain 1983 water quality goals. Also, measurements can be based on economic, technical, social, and environmental factors rather than a straight water standard measurement.

To state it another way is to say that control programs are not required where water quality problems do not exist. Mr. Bert Lance, OMB administrator, tells the story that fits this point very well. He quotes his northern Georgia mountain friends thus, "If it ain't broke, don't fix it."

In lieu of the regulatory program, other approaches to NPS control may be approved by the Regional Administrator as fulfilling the NPS control requirements in Section 208 (b) (2) (F-K) only where, in his judgement, the program will result in implementation of NPS controls which will result in achievement of the desired water quality goals. Approval shall be given only
when the following conditions are met:

1. Provision of an effective educational program to inform the affected public of the requirements.

2. Provision of adequate technical assistance and financial assistance.


4. Agreement on schedule of milestones, such as implementation, monitoring, and program evaluation.

5. Agreement to reporting system (at least annual) to the Regional Administrator on progress made in implementation.

The Regional Administrator can require such information in these reports as is necessary to evaluate milestone progress. Milestone progress can be shown in terms of implementation measures, resource commitment, and water quality improvement.

Approval of these other approaches shall be withdrawn if the Regional Administrator determines that implementation milestones are not being met. These approaches will be allowed to continue from one reporting period to the next only when continuing and substantial progress is being made toward attaining water quality goals. Where such progress is not being made, then approval of these approaches shall be revoked.

We have come a long way, and I for one wish to commend all of you present, and those not in attendance, and particularly the NFPA staff for their leadership in making clear the forest industries' concern about a 208 regulatory program that would be detrimental in increasing wood fiber production on the private commercial forests of our land.

How has all of this affected us to-date? First, it is just one of many issues that the landowner, the user of fiber, and the consumer has to reckon with since the swelling of the environmental tide. To name a few would be mitigation, wilderness, scenic rivers, coastal zone, management zone, wildlife refuge, conversion to agriculture, nature conservatory, and endangered species (for example, red hills salamander, sand hill crane, leopard darter, snail darter, furbish lousewort, pearly mussel, higgens-eye clam, and grizzly bear). (Did you read in the NFPA Newsletter a few weeks ago about the grizzly bear habitat hearing?) Evidence
indicates that, far from being threatened, the grizzly bear popula-
tion has been relatively constant for at least 20 years and may
even be increasing; and further that setting aside 13 million
acres, as proposed by the U. S. Fish and Wildlife Service in
implementing the Endangered Species Act, clashes with the opinion
of recognized management experts who determined that only about
2.5 million acres would really qualify as grizzly habitat.

A recent publication, Research Recap, by the American Forest
Institute gives the result of the annual public opinion survey
for the forest industry relative to major environmental issues,
conducted by Yankelovich, Skelly, & White, Inc. This opinion
survey indicates that the public is critical of the forest
industry's performance in the control of water quality. The
public believes that a strict enforcement of water pollution
standards against businesses will be necessary in order to have
good water quality. The leadership group sampled in our country
expects more rigid, not looser, controls to obtain good water
quality in the United States.

The leaders of our country are re-evaluating "zero discharge"
effluent requirements. About half of the leadership agrees that
the cost of "zero discharge" may outweigh the benefits, and they
are having second thoughts about the original concept.

Now, how do we as individuals make ourselves heard and stand
up for what we consider to be right? Maybe like F. G. Barlow
from Boise, Idaho, who refused the OSHA people entry for a
warrantless inspection of work places to his property under
pretense that it was invading his privacy. He met OSHA in court
on the basis that it was against his constitutional rights, and
he won the case in the district court. We need to write to the
man and, at the minimum, give him our thanks.

Or, perhaps our more normal way to make our voice heard
rather than like Mr. F. G. Barlow from Boise, Idaho, would be by
binding together with people of like interests and making our
desires known by involving ourselves through the state forestry
association or some similar group or organization.

Since December 3, 1976, the Southern Forest Council, which is
made up of the twelve southern state forestry associations and
southern regional organizations with like interest are following a
set of 208 guidelines, twelve in number, when working on 208 state
plans. The SFC strategy reads as follows:
SOUTHERN FOREST COUNCIL'S
STRATEGY FOR FORESTRY PARTICIPATION IN
PLANNING AND IMPLEMENTATION OF SECTION 208 OF THE
FEDERAL WATER POLLUTION CONTROL ACT

"The forest resources and timberlands of each southern state are among the most valuable of our natural resources. Modern management of forestland in the South, as now practiced, helps supply the nation's wood product and fibre needs, recreational, fishing and hunting opportunities, and aesthetic enjoyment while at the same time providing watershed protection and maintaining high water quality.

"The deadline of November 1, 1978 has been set by the Environmental Protection Agency at which time each state will be required to have developed plans to control nonpoint source pollution, including the quality of water runoff from forestland. EPA has been vigorously promoting inclusion of regulatory Best Management Practices in state nonpoint plans as the method to control the quality of nonpoint sources of water.

"Voluntary sound forest management in recent decades has contributed greatly to a high quality of water in forestland streams. Forestry interests in the South believe it is not the intent of Congress to impose regulatory programs upon millions of private owners of forestland which would markedly increase the cost of timber, housing, wood product and wood fibre needs to the public when the existing water quality is already high. Instead, continuation and expansion of voluntary sound forest management can achieve any further needed improvement in water quality and at the same time result in increased forest productivity to meet the documented future needs of the Nation.

"The following actions will promote proper development of Section 208 planning for forestry in each state:

"1. EDUCATIONAL AND TRAINING PROGRAMS FOR TIMBERLAND OWNERS AND OPERATORS SHOULD BE INITIATED TO ENCOURAGE FORESTRY TO BE PRACTICED IN A MANNER WHICH DOES NOT DEGRADE WATER QUALITY.

"Such programs should be started immediately to help correct any water pollution problems caused by forestry activities. Any reduction in water quality problems will reduce the likelihood of government adoption and enforcement of forest practice regulations. The state forestry commission, the cooperative extension service, the state forestry association,
companies and other appropriate groups involved in land management practices may all participate in such programs. Educational programs should also be included in state 208 plans as a means to prevent or remedy water quality problems.

"2. FORESTRY INTERESTS SHOULD TAKE AN ACTIVE PART IN ALL PHASES OF SECTION 208 PLANNING AND BE REPRESENTED ON ALL COMMIT­TEES, GROUPS, AGENCIES, AND COMMISSIONS DEALING WITH THE SUBJECT.

"Feasible planning and programs will not result without active participation by persons with training and expertise in forestry and forest hydrology.

"3. FORESTRY PLANNING FOR SECTION 208 SHOULD INVOLVE ONLY THOSE ACTIVITIES WHICH HAVE AN IMPACT ON WATER QUALITY.

"Public Law 92-500 was enacted with the objective of protecting or enhancing water quality. Section 208 planning, therefore, should encompass forestry activities related only to water quality.

"4. QUANTIFY MAN-CAUSED POLLUTION OF STREAMS ATTRIBUTABLE TO FORESTRY ACTIVITIES.

"Water pollution caused by forestry activities in the South is considered to be extremely minimal and may vary from one section of a state to another. Any pollution problem caused by forestry activities should first be identified and assessed before any proposed solutions are considered. Quantification should separately identify any pollution caused by man in carrying out forestry activities in relation to the natural level of pollution, increased levels of pollution caused by natural events, and pollution from man-caused practices other than forestry operations.

"5. ONLY AFTER ANY SUBSTANTIAL WATER QUALITY PROBLEM RELATING TO FORESTRY HAS BEEN IDENTIFIED SHOULD PLANNING FOR SECTION 208 PROCEED TO EVALUATE POSSIBLE SITE-SPECIFIC SOLUTIONS.

"It would be unwise to impose costly planning and recommend changes in practices when no substantial water quality problem exists. Furthermore, forestry interests support the original position of the Environmental Protection Agency in the case of NRDC vs. Train and its current appeal wherein EPA maintained that areawide planning should be conducted
only in areas designated by the governor of each state as having significant water quality problems.

"6. ANY SUBSTANTIAL WATER QUALITY PROBLEMS ATTRIBUTABLE TO FORESTRY ACTIVITIES SHOULD BE CORRECTED BY APPROPRIATE MEASURES DEVELOPED AND CARRIED OUT BY FORESTRY PROFESSIONALS.

"Persons trained in forestry are aware that any substantial water quality problems vary from site to site and may be remedied by several alternative methods. Measures proposed to remedy any problem, therefore, are site-specific and should not be included in state 208 plans as general management practices. Forest managers can best prescribe and implement any needed site-specific remedial measures.

"7. PRACTICES RECOMMENDED TO REMEDY IDENTIFIED PROBLEMS SHALL TAKE ECONOMIC AND TECHNICAL FACTORS INTO CONSIDERATION.

"It would be extremely easy for persons unfamiliar with the art and science of forestry to propose remedial practices which would not be feasible to apply. A thorough economic and technical evaluation should be conducted by persons with expertise in forest management to determine the feasibility of any recommended remedy.

"8. THE STATE FORESTRY AGENCY SHOULD BE DELEGATED THE RESPONSIBILITY FOR SECTION 208 FORESTRY PLANNING.

"The state forestry agency is the state agency capable of considering all institutional, economic and technical matters related to forestry activities and recommending various components of state 208 plans and programs.

"9. THE STATE FORESTRY AGENCY SHOULD BE ASSIGNED THE RESPONSIBILITY TO PRESCRIBE ACTION TO CORRECT ANY SUBSTANTIAL WATER QUALITY PROBLEM RELATED TO FORESTRY.

"State 208 programs may include activities to monitor water quality. The water quality agency or its delegated monitoring agent should notify the state forestry agency of any water quality problem and of the findings of any forestry related monitoring activity. In event a substantial water quality problem is found to exist, the state forestry agency has the technical and institutional capability to effectively communicate with forestland owners and operators to gain their cooperation in correcting any problem.
10. INCENTIVES ARE RECOMMENDED TO ENCOURAGE VOLUNTARY SOUND FOREST MANAGEMENT TO PREVENT WATER QUALITY PROBLEMS.

"Forestry interests in the South have continually advocated a voluntary approach to sound forest management practices as opposed to governmental regulation. Tree planting programs, equitable taxation, and other forestry incentive measures in the past have been very effective in bringing about sound forest management practices which reduce water pollution. Increases in funding for state and federal incentives programs and expansion of equitable state and federal taxation incentives will accelerate the use of sound forest management practices.

11. THERE SHOULD BE A COORDINATED FORESTRY EFFORT TO AMEND PUBLIC LAW 92-500 TO REMOVE ITS ONEROUS IMPLICATIONS FOR GOVERNMENTAL REGULATION OF FORESTS WHEN NO SIGNIFICANT PROBLEMS EXIST.

"Public Law 92-500 was adopted during a period of extreme environmentalism when insufficient time was given to identify substantial water quality problems. Many institutional, economic and technical factors were not considered when the law was enacted and when regulations were developed by EPA. Amendment of the law is needed to clarify its intent and reduce its scope to cover only those operations which truly cause substantial water quality problems.

12. FORESTRY INTERESTS IN EACH STATE, AND NATIONWIDE, SHOULD COORDINATE THEIR PLANNING EFFORTS AND STRATEGY WITH ALLIED GROUPS CONCERNED WITH OTHER NONPOINT SOURCE SECTION 208 PLANNING.

"Interests other than forestry in each state, such as farming interests, will also be carrying out strategy and planning for Section 208 requirements. Early coordination with these other groups can result in a judicious approach for the entire state, and also create an early bond between related groups which will result in more effective action to change unreasonable state or federal requirements. Details of forestry planning and programs for Section 208 implementation may, nevertheless, vary from those for other nonpoint sources."
With Southern Forest Council guidelines and EPA's recent policy change, there is no reason for any state to be hung up on BMP's, but they should be tackling the job head-on with aggressiveness, sincerity, and satisfaction knowing they are having an input to assure that the waters of our land will be "swimmable and fishable" by our offspring for generations to come.

The NFPA is attempting to monitor the 208 state planning as it is developed. As a part of the effort, the SFC has named a 208 state contact to monitor the planning in each of the twelve southern states. The first report will be a status report forwarded to NFPA via SPPA by April 15, 1977. An update will be sent in at the first of each month to record the latest activity in the planning process. This information will be privy to anyone in the forest industry who is interested in the progress of 208 state planning.

Also, each state member of the SFC has identified a 208 action group to probe and prod the advisory committees into action. This group should be right on top of the 208 planning process whereby they can suggest, guide, and promote action wherever needed. The involvement of the interested people like the forestry association members is our best assurance that the state 208 plan will be feasible and workable.

The SFC 208 state contacts are meeting in Atlanta next Tuesday, April 19, 1977 to review and understand their role in this whole planning program.

Another action underway concerning the Federal Water Pollution Control Act is the API/NFPA Corrective Action Task Force. I'm proud of the fact that my Chairman of the Board and Executive Officer is Chairman of this Task Force. Reporting to the Task Force are three action committees: (1) Communication Committee to make people aware of problems and intended action; (2) Technical Committee will determine the action to be taken; (3) Legislative Committee will strive to get the desired action taken in the political arena. At the present time, there is very little corrective action that can be proposed for Sections 208 and 402 because there has not been sufficient time to measure the impact. One point that will be raised by the Task Force is that the results of silvicultural activities over a number of years and after many studies has shown a marked improvement in our water quality in our lakes, streams, and other water resources rather than pollution as inferred by document after document from EPA. The question will be to define the problem before trying to "fix it."
How much will it cost? Let me quote Mr. R. E. Kemper and Mr. L. S. Davis' report in November, 1976 issue of the *Journal of Forestry*. These USFA men developed and empirically qualified a method for measuring the cost of esthetic and environmental constraints on timber harvesting and regeneration for two western National Forests. "Should road programs, erosion controls, and logging methods which might seem reasonable to a 'moderate' environmentalist be implemented, logging costs would rise substantially. This was shown on the Cascade District of the Boise National Forest in Idaho when future prescriptions were compared with the 1969 prescription.

"The variation between these two U. S. forests that were studied makes it unwise to generalize except to say that costs between 1969 and 1973 increased an average of 11 percent on one forest and 24 percent on the other."

Most of us like to "blue-sky" from time to time, and maybe get away from reality; but this little lyric found in the December, 1976 issue of *American Forests* entitled, "What Forests Mean to America," says:

"Imagine the shape of Superior Trees...  
Imagine a forest growing 'neath the seas.  
Imagine energy made out of wood...  
Imagine products not yet understood.  
Imagine a city designed around trees...  
Imagine your children playing in the breeze.  
Imagine a green tree that cleans up the air...  
Imagine pollution that's not anywhere."

Is there enough engineering talent in forestry, in natural resource management, to, as the song says, "Imagine"—then act to make it come true?

It will take leadership and a lot of hard work to accomplish our objectives as addressed by Sections 208 and 402 of PL 92-500.

Inform yourself, your coworkers, your peers, and your neighbors. Work within your own organization and associations. Be a part of accomplishing our goals—fishable and swimmable waters by 1983.
DISCUSSION

Question: When is the time coming that a private landowner will have to have a permit to cut his own timber?

Answer: To my knowledge Section 208 does not cover this area at present. I don't believe Section 208 is intended to regulate cutting by permit. Actually what I have talked about is how to handle the situation after you have cut your timber. We already have to have some permits for certain operations to be applied after the timber is cut. For example, we have to have permits to store the timber under water and for some nursery operations, among other things. Right now we are trying to avoid the permit or mandatory control of "Best Management Practices." Let's hope we can make it a voluntary control on our part through the application of Section 208.
When giving consideration to environmental constraints upon forestry practices, it quickly becomes apparent to an interested observer that large segments of the public look upon forests as a panacea for all environmental problems.

Our forests are expected to cleanse the air, purify the water, enhance esthetics, provide game habitat, protect streams from thermal pollution, and provide recreation. All of this is supposed to be done on every acre, every day of every year. It's supposed to be done without changing the configuration of the land or the looks of the timber. In contrast to these demands, some people seem to be completely disinterested in the production of forest raw materials for fiber or shelter.

Nowhere is this attitude more prevalent than it is where the forests are located adjacent to or are a part of wetland areas.

You have heard in preceding sessions a discussion of water pollution control regulations. In some cases it is extremely difficult to draw a line between regulations which apply to widespread forestry operations, and those which are carried out in or adjoining streams and their adjacent wetland areas, and in coastal zones.

There are however, at least two laws on the books, and there will probably be more, which confine their authority specifically to activities which occur in coastal zones, or in the waters of the United States and their adjacent wetlands. These two laws are the Coastal Zone Management Act of 1972, and the Federal Water Pollution Control Act Amendments of 1972, PL 92-500, as covered by Section 404, permits for dredged or fill material.
I shall not attempt to cover all of the pros and cons of the desirability or even the necessity of these two acts. A two- or three-day symposium could be held on these issues alone. Suffice it to say that these two acts are the law of the land, and unless they are repealed or amended, are enforceable as such. I shall instead give you a background review of the public actions which resulted in the regulations being in their present form, and an indication of how I feel that their enforcement will influence forestry practices.

COASTAL ZONE MANAGEMENT

The Coastal Zone Management Act was signed by President Nixon in 1972, and at that time it was said to be the most significant environmental management measure to come out of Congress that year. This is the same year that PL 92-500 was enacted, by the way.

Many significant events during the years preceding the passage of this act had heightened attention to the U.S. coastal areas and created demands for more aggressive governmental action. Oil pollution on California's coast, sparked by the Santa Barbara spill, raised considerable nation-wide concern for the coastal regions. Added to this has been the rapid rate of population growth and its resultant expansion in the development of coastal communities and industries, many with haphazard planning and insufficient environmental controls. Coupled with this was a growing concern over the lack of a national program for the harvesting of the valuable resources of the world's oceans.

Under the act, state governments have the responsibility for coastal zone management. A two-stage federal funding program was initially established to encourage the states to participate in the program. Grants designed to promote the development of a program by the states were followed by grants to assist the states in administering the program. Subsequent amendments to the act, in July 1976, established a Coastal Energy Impact Program, which provides financial assistance to meet the needs of coastal states and local governments which result from energy activity affecting the coastal zone. These needs include public facilities and public services, repayment assistance, environmental and recreation mitigation, and planning.

Prior to the 1976 Amendments, most of the states adopted a rather cool attitude toward the federal program. The Act did not require state participation, and the incentive to participate was the desire for federal money. The two original funding programs were actually small potatoes, and many states took the attitude
that they could do without the burden of another layer of federal regulation which would accompany the federal hand-outs.

The enactment of the 1976 Amendments, however, changed that viewpoint. Suddenly, the federals were talking about big money. The amount authorized for these programs, referred to as CEIP's (Coastal Energy Impact Program), or Section 308 funds, amount to 850 million dollars. What state or county agency can resist the allure of participating in the acquisition of federal funding in such amounts? Many areas which up to this point had shown a lack of interest in coastal zoning are now clamoring for coverage for their newly discovered coastal zones.

As defined by the CZMA, the coastal zone is "the coastal waters (including the lands therein and thereunder) and adjacent shorelands (including the waters therein and thereunder) strongly influenced by each other and in proximity to the shorelines of the several coastal states, and includes islands, transitional and intertidal areas, salt marshes, wetlands, and beaches. The zone extends, in Great Lake waters, to the inter-national boundary between the United States and Canada and, in other areas, seaward to the outer limit of the United States territorial sea. The zone extends inland from the shoreline only to the extent necessary to control shorelands, the rises of which have a direct and significant impact on the coastal waters. Excluded from the coastal zone are lands the use of which is by law subject solely to the discretion of which is held in trust by the Federal government, its officers or agents."

You can readily imagine that a definition such as this, coupled with the fact that each state must enact its own coastal zone legislation, has resulted in an abundance of confusion as to where the boundaries of the coastal zones should be located. Despite the fact that the state programs must be approved by the National Oceanic and Atmospheric Administration in the Department of the Interior, the states have considerable latitude in the type of program which they wish to implement, depending on the amount of regulation which they will accept in return for federal dollars.

While most of the some 30-odd coastal states are still in the process of developing a program, a few have gone far enough to give us an insight into the results on forest management practices.
California has the most stringent act, which calls for state acquisition of unspoiled natural areas, concentration of coastal growth in already developed areas, maximum access to beaches, and stringent controls over all development in an area running from 1,000 yards to as much as 5 miles inland.

The Florida plan is nearly as restrictive. The Florida Department of Natural Resources designated a 30-county coastal zone, which contains 27 percent of the state's land area and 75 percent of the state's population.

While the state of Florida is still in the process of drafting state policies for coastal management, there is no question but that these policies when complete will have a significant effect on forestry. Forest management is an extensive land use in Florida's coastal zone. Forest management practices comprise a major element in the plan. Forestry professionals throughout the state have participated in drafting forest management practices guidelines. In the draft recommendations are: buffer strips between harvest areas and receiving bodies of water; prompt reforestation of harvested areas; water management on pineland sites to meet established water quality standards; and prescribed burning that meets pollution control regulations. One important item still to be resolved is the determination of which state agency will be responsible for plan implementation.

North Carolina plans to meet the federal Coastal Zone Management requirements by establishing regulatory authority in designated areas of environmental concern, coupled with a system of existing regulatory authorities outside the areas of concern. In general, property owners and local governments are resisting state actions to designate areas of environmental concern.

Both Louisiana and Mississippi, as well as several other southern states, are in the process of developing a management program acceptable to both the state legislatures and the National Coastal Zone Management Administrator.

Under the circumstances, it is extremely difficult to assess the constraints that will result to forestry practices as a result of state coastal zone management programs.

While some of the states are exempting the so-called normal agriculture and silvicultural operations from the regulatory portions of the plan, others are not. Road building, draining, diking, and ditching are generally not considered normal silvicultural operations, and must meet permit requirements.
Forest landowners and managers are becoming aware of the threats to their ownership rights which are posed by such regulatory programs, and are beginning to have their input felt at the local, state and national levels. In a recent publication the National Oceanic and Atmospheric Administration reported that one of the key factors accounting for the difficulty in implementing effective State Coastal Zone Management programs is that the political climate for environmental programs which involve additional governmental intervention and regulation has undergone recent changes and has become much harsher.

CORPS OF ENGINEERS REGULATIONS

Section 404 of the Federal Water Pollution Control Act came about in a strange way. Under the laws of the United States, Congress has the power to grant to the U.S. Army Corps of Engineers functions which are non-military in nature. Some of these are the traditional responsibilities in flood control, recreation, water supply storage, and hydroelectric production.

Congress also holds the Corps of Engineers responsible for the construction and maintenance of navigation channels and harbors, and their protection against encroachment. Thus the Corps of Engineers was responsible for over 75 years for keeping the nation's navigable waters open for waterborne commerce. For this reason Congress gave authority to the Corps under the 1899 River and Harbor Act to regulate dredging and disposal of dredged material in the navigable waters. Other than this, the Corps had no authority or responsibility to protect or in any way regulate wetlands. The stated objectives of the 1972 Federal Water Pollution Control Act, PL 92-500, was to restore and maintain the integrity of the nation's waters. A reading of the legislative history of Section 404 clearly shows that the primary purpose of Section 404 was to insure that the Corps would give proper consideration to water quality in disposing of dredge spoils.

Senator Muskie, a strong supporter of the 1972 Amendments, in testimony made during the debate on the Conference Committee bill, submitted a statement saying that:

"The Conference Committee was uniquely aware of the process by which the dredge and fill permits are presently handled and did not wish to create a burdensome bureaucracy in light of the fact that a system to issue permits already existed. At the same time, the committee did not believe there could be
any justification for permitting the Secretary of the Army to make determination as to the environmental implications of either the site to be selected or the specific spoil to be disposed of in a site. Thus, the Conferees agreed that the Administrator of the Environmental Protection Agency should have the veto over the selection of the site for dredged spoil disposal and over any specific spoil to be disposed of in any selected site. The decision is not duplicative or cumbersome because the permit for review will set forth both the site to be used and the content of the matter of the spoil to be disposed. The Conferees expect the administrator to be expeditious in his determination as to whether a site is acceptable or if specific spoil material can be disposed of at such site."

Thus, in this and in many other instances during the debate on the bill, it was clearly indicated that Section 404 was intended as a program to insure that the Corps give consideration to water quality objectives in carrying out its own maintenance programs in the navigable waters. Also, in Section 101 (b) of PL 92-500, Congress expressly said that the states have the primary right and the responsibility of planning the development and use of land resources.

Despite all of these safeguards which were contained in the bill which would seemingly prevent the imposition of federal land use regulation upon private lands, we now find ourselves in a position where the Corps of Engineers has regulatory control over uncounted millions of acres of privately owned property, much of which is occupied by commercial forests.

How did this come to pass? Even the Corps would be hard pressed for an answer. For the truth is that, initially, the Corps did not seek and did not wish to hold regulatory power over property which was outside the scope of the traditionally navigable waters of the nation.

One answer to the dilemma we are in rests in the definition of navigable waters of the United States as promulgated by the Environmental Protection Agency in its regulations in connection with the implementation of Section 302 and other sections of PL 92-500. This has resulted in a great expansion of the area to be regulated by the Corps.
For the first few years after the passage of PL 92-500, both the Corps and the Environmental Protection Agency interpreted Section 404 as applying only to the traditional navigable waters over which the Corps had always had jurisdiction.

This set the stage for the second action which has completely reversed the position of the Corps of Engineers. The Natural Resources Defense Council, a well-funded organization which purports to be a protector of the nation's environment but which in truth seems to be dedicated to the complete federal control of all private property, brought suit against EPA and the Army Corps of Engineers.

In March, 1975, as a result of the court decision in NRDC vs. Callaway, the Corps was ordered to redefine the term "navigable waters" in its regulations. It is this new definition of navigable waters which has been one of the principal causes of problems to forest owners and managers.

The Corps first published regulations designed to implement regulation in three phases, with the final phase to begin on July 1 of this year.

More recently, the Corps has published final draft regulations which are designed to consolidate all of its regulatory activities into one federal regulation.

These regulations no longer use the term "navigable waters," rather they employ the term "waters of the United States," which is defined so as to include all streams up to a point where the average flow is five cubic feet per second or greater, all natural lakes greater than five acres, the territorial seas, coastal waters, and their adjacent wetlands.

In describing "waters of the United States," the Corps, while setting a definite geographical limit to its jurisdiction, recognizes that discharges of fill material will occur in waters beyond this administrative limitation. It chooses to authorize these discharges while subjecting them to certain constraints. Thus, they are authorized by permit. Included in this category would be minor bank stabilization, repair and maintenance, and road fills involving less than 100 cubic yards of material. The Corps feels that permitting by regulation rather than exempting these activities will protect them from litigation.
While the regulations permit certain discharges as long as the discharges are in compliance with state water quality regulations or Coastal Zone management programs, they do not allow any delegation of the 404 program to the states. The Corps feels this would require specific legislation.

The Corps has broadened its definition to go much farther than directed by the court, including all coastal and freshwater wetlands "adjacent" or "contiguous" to such waters. Furthermore, the Corps defined wetlands so broadly that the term even covers some lands which merely have a high water table. Needless to say, almost all forest lands could be involved, one way or another. One estimate by the U.S. Soil Conservation Service is that at least 83 million acres of productive forestlands lie adjacent to rivers or lakes, and are characterized by poor drainage or a high water table. This type of land appears to be within the Corps' definition of wetlands.

This points up the first problem faced by a forest manager. When is a permit required? In many cases the Corps itself doesn't seem to know. It will be an almost impossible task for the Corps to actually identify on the ground or even on maps its jurisdictional area. The Corps' definition of wetlands is causing widespread confusion and uncertainty. This situation results in administrative delays and costly litigation.

Here are some specific ways in which the latest regulations, as I understand them, will affect forest management practices.

Virtually all roads constructed which would cross streams or wetland areas would require 404 permits. They are generally constructed by the placement of earth, which the Corps regards as a discharge of fill material. This material does not have to be dredged, loaded, hauled, or dumped to qualify for regulation. All that is required is a disturbance.

Forest roads through areas with high water tables are often constructed by digging two parallel ditches and casting the excavated material in between as a roadbed. The sidecast material is regarded as a discharge of dredged material.

Likewise, construction of drainage ditches for any reason requires a permit. In many forested areas water control ditches are used for control of excessive rainfall and floodwaters. This improves conditions for reforestation and growth, and permits the use of mechanized logging equipment.
The diking of lands for the purpose of controlling water levels in wetland areas would also be subject to permit requirements. In many areas of the South hardwood plantations, such as cottonwood, are given protection from flooding during early years by secondary levees. The regeneration of cypress requires protection from flooding during its germination.

One of the major problems in connection with the 404 permit program from the standpoint of forest managers is the jurisdictional organization of the Corps of Engineers itself.

The proposed regulations have provisions for the issuance of general permits which will simplify the permit application process. Up to the present time, however, enforcement has been at the District level, and each Corps District has interpreted the requirements of the regulations in accordance with its own philosophies, pressures from the public, and availability of manpower to carry out the job. The result has been more than confusing to forest managers.

There are 38 Corps Districts in the 50 states. These Districts are organized into Divisions, of which there are 11. The confusion of having 38 Districts, reporting to 11 Divisions, each making its own interpretations on the ground, is further compounded by the fact that many states are in the jurisdiction of more than one Corps District. Five different Corps Districts have jurisdiction in the State of Louisiana, for instance, and these five Districts are parts of three different Corps Divisions.

General or otherwise, the regulations state that "the decision of the Corps as to whether to issue a permit will be based on an evaluation of the probable impact of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources."

The uninitiated would think that water quality would be the only factor considered in making a permit determination. However, the proposed regulations state that all factors which may be relevant to the proposal will be considered; among these are conservation, economics, esthetics, general environmental concerns, historic values, fish and wildlife values, flood damage prevention, land use classification, navigation, recreation, water supply, water quality, energy needs, and, in general, the needs and welfare of the people.
The final draft regulations also contain provisions for public hearings, Environmental Impact Studies on major projects, coordination with other agencies, surveillance, and enforcement.

It should also be recognized that the draft regulations currently being circulated by the Corps is not final, and could be revised so as to exempt all silviculture activities, including forest road building and drainage, from permit requirements.

While there are a considerable number of uncertainties as to the future impacts of Section 404 on forest management practices, one thing that is certain is that the law is on the books, the Corps of Engineers is organizing to enforce it, and D-day will be July 1, 1977.

The first flurry of action will probably be followed by a truce period, during which time the mountains of red tape will be unsnarled. Then will come a period of ever increasing onerous regulations, which will end only when Congress correctly gauges the temperament of the people of the country, and repeals or amends the law.

In the meantime, what course of action would I recommend to you, as foresters? It could be summed up as follows:

1. Stay abreast of all scheduled deadlines, so as to avoid enforcement problems.

2. Work closely with your local, state, and federal agencies. Do not consider them to be your adversaries.

After all, they are carrying out programs dictated by federal law, or the courts, and will give you the benefit of the doubt if you work openly and honestly with them. They need to be educated as to the needs of forestry, and only we, as foresters, can educate them.

SELECTED REFERENCES


Public Law 92-500; 86 STAT. 816. The Federal Water Pollution Control Act Amendments of 1972.

Public Law 92-583; 86 STAT. 1280. The Coastal Zone Management Act of 1972.


DISCUSSION

Question: In order to build a logging road, after the first of July, do you need a permit?

Answer: Under Phase III, which goes into effect July 1, 1977, and under the regulations as now written, you will need a permit if the road crosses a stream which has a flow more than five cubic feet per second. The Corps of Engineers is currently in the process of putting together "general permits." We don't yet know the complete provisions of these general permits. There are indications that there will be a 200-yard exemption; that is, if the fill below the water level is less than 200 cubic yards, you will not need a permit. But as we now interpret the regulations, the exemption will be allowed only if there are no adjacent wetlands. Almost all our little streams have a little wetland area on one or both sides. In the regulations published to-date, there are no exceptions for any amount of fill, in wetlands. But this matter is still undecided. The Corps is becoming better organized in the matter of permits. They are in the process of drawing up general
permits state by state. Some general permits have already been published, particularly on the West Coast. The general permit for Louisiana, I understand, is going to cover the entire state of Louisiana, which would include parts of five Corps Districts. This will greatly simplify the permit process in Louisiana. However, the contents of these general permits have not yet been made public. It takes time for the Corps to revise and rewrite these regulations and to get organized to carry them out. These general permits may be published by July 1, but if not, we will have to continue to use the standard Corps of Engineers permit form presently in use.

Question: Is there any virtue in this general permit system?

Answer: That's a hard question to answer. In some circumstances, in wetland areas of critical concern, permits will play an important role in protecting waters from pollution. But, just because there is a need in certain critical areas, we don't want to have to go through a permit requirement procedure all across the land for every little culvert that goes in every little stream crossing. That's the heart of the problem, and that's what the amendments now before Congress are addressing.

Question: Isn't this general permit approach a good testimony to the stupidity of the situation?

Answer: When we talk about general permits, we're talking about a new type of permit which the Corps is contemplating using to allow a landowner to apply for permits either in a general area or for a certain system of road construction, rather than the present requirement of a separate permit for every culvert installation. The general permit, we anticipate, will have a lower fee schedule, and that factor could be important. If you want to build a road which requires 30 or 40 bridges and culverts, you certainly do not want to have to pay a permit fee for each culvert and bridge in that road construction project.

Question: I've heard you mention a simple method of figuring out whether a stream has a flow of at least five cubic feet per second: "a stream you can't jump over." Let's say you have a stream you cannot quite jump over, so you
decide that perhaps you might be under Corps jurisdic-
tion. Would you go through the practical steps of
what you then have to do?

Answer: I have had no experience in this matter, because Phase
III does not go into effect for a couple of months. In
our company's operations we didn't build any roads in
questionable areas, but after July 1 we're going to be
face-to-face with the problem. We're hoping that the
guidelines for general permits which the Corps plans to
issue will clarify this situation between now and
July 1. I understand that the Corps intends to identify
the five-cubic-feet-per-second flow, not by measuring
the volume of water flow, but by measuring the water
drainage area. If it is more than 600 acres, for
example, they will assume that the main drainage through
the area has a flow of more than five cubic feet per
second. But the safe thing to do after July 1 is to
apply for a permit until you get a feel for it. Under
Phase I, we applied for permits in some places, and the
Corps was a good agency to work with—quite helpful and
cooperative. However, with each Corps District
following its own guidelines, you never knew how you
stood. Hopefully, this situation will be corrected by
July 1.

Question: First, what do you see as a mechanism for enforcement if
we don't get relief from the current regulations?
Second, what in your opinion will be the criteria for
defining the coastal zone in Louisiana?

Answer: First, I hear that the Corps has some sophisticated
methods of aerial and satellite photography, so it can
monitor what's happening on the ground, even such little
things as building a road, putting in a culvert, and
building a bulkhead and a pier. The Corps doesn't now
have the personnel to enforce the regulations, but I
think if it had to, the Corps could gear up to do it.
However, I doubt that even if the law is not amended
the enforcement will be rigid. I don't think the public
is going to demand that the Corps enforce these regula-
tions on each little stream. In answer to your second
question, I think the decision on coastal zone boundar-
ies will be political. The first coastal zone
management plan for Louisiana included about 26 parishes;
it took about one third of the southern end of the state
and contained some 3 million areas of commercial forest lands. People objected to so large an area being included in the coastal zone, so the second boundary suggested was the five-foot contour level. The third boundary, which was accepted by the Louisiana Coastal Commission, is three miles inland from the coast. The legislature is holding hearings on this, and there is much dissension as to where the boundary ought to be placed. Mississippi hasn't been able to agree on a boundary yet. The matter is going to be a political one, decided case-by-case in each state.
Southern forestry within recent years, from any given viewpoint, has looked much the same, though it is always different. New constraints and new pressures have been brought to bear against it, which while not changing the scene significantly as yet, have certainly made foresters acutely alert to their homework. And, I might add, to their field work, as well!

Not the least of these pressures upon forest lands, and one which it appears will have to be dealt with at some level sooner or later, is Public Law 93-205, the Endangered Species Act of 1973. At this time there is precious little known about, and many potential pitfalls and difficulties associated with, the ultimate interpretation and implementation of this act.

The Endangered Species Act was originally developed and passed to deal primarily but not exclusively with the problems of survival in this technological age of such traditionally well known but increasingly scarce animals as the grizzly and brown bears, bald eagle, and others, popular as legal game to be pursued in fair chase, or enjoying a certain symbolism or status in our history or society.

Tacked on with these, almost as an afterthought, was protection for plants, insects, snails, clams, and a multitude of non-game birds and animals.

The initial lists of endangered and threatened plants were presumably drawn up by experts of the department of botany of the Smithsonian Institution, and based, again presumably, upon a search of the literature, herbarium records, and consultation with
other Washington area botanists. Those which affected Louisiana first appeared in the Federal Register of July 1, 1975, Part V, Volume 40, Number 127, with later revisions and/or additions in the Federal Register of June 16, 1976, Part IV.

Responsibility for implementation and enforcement of the act was assigned to the U.S. Fish and Wildlife Service of the Department of Interior, and this included the power to condemn land to protect any of the designated endangered species.

Louisiana and many of our sister southern states are veritable fountainheads of resources, and the welfare of our people depends on the prudent use of this bounty so generously bestowed upon us.

Wise decisions must take into consideration not only the ecological realities but also the needs of our citizens. In Louisiana we have enjoyed a relatively stable economy and quality environment. We have had lower taxes and a more favorable tax base than almost any other state in the nation. We expect and hope that these basic characteristics can be maintained and perhaps even improved, but to provide for additional jobs and social quality a greater and stronger economic base is essential. The proper management of our forests and related lands using the latest skills and techniques available contributes a large share to the economic health of most of our southern states. Today's imperatives, however, make it necessary that all resource managers pay close attention to maintaining environmental values along with economic vigor.

One cannot easily define, therefore, the terms wise use, conservation, and preservation, when an attempt is made to apply these to complex, highly interconnected ecological realities. Management decisions which do not consider this interconnectedness are likely to be bad decisions.

Our responsibilities to our people and our land are growing increasingly complex, but I want to point out that the key word in this statement, and the reason why I place it first, is people. Without people on this earth, the question of natural resources, and certainly endangered species, would be academic.

I consider myself a forester in the classic sense of the word, and I consider myself an environmentalist, also in the classic sense of the word. I find no conflict between the two. I believe in the quality of life; and, as State Forester C. W. Moody of
Alabama said in an article in the November-December, 1976 issue of Forest Farmer magazine, I, too, believe in the protection of any species whose extinction would have a degrading effect on man's environment. I agree that subtle, sometimes almost undetectable, changes in a given ecosystem, whether produced by man or natural causes, may result in nerve-shattering consequences to society. Those natural systems, communities, or populations which hang on delicate balances should be carefully identified and husbanded.

Nevertheless, I am convinced that the earth and all of its resources exists for man's benefit, and that man was and is intended to be, in Mr. Moody's words, the "dominant species" on earth. Some would say this attitude is symbolic of man's arrogance. I would merely wish to refer you to the authority of the Genesis story in the Bible, and whether you elect to accept this or not is not the matter in question here today.

Man's dominance, of course, is not, and never has been, interpreted by reasonable men, as a license to exploit and plunder, but, on the contrary, there is a very real responsibility which must be exercised and translated from one generation to the next for the proper protection and replenishing of resource values. That we find ourselves in such an environmental quandary today speaks clearly of past failures and a faltering in the translation of those responsibilities. In spite of this, in the restoration and protection of other edifying values, and concepts of edifying values, the approach must still be couched in terms of the impact on man.

Species extinction and environmental pollution from natural causes are stories older than man, since both occurred with great frequency but exquisite organization and interaction, before man's advent on earth. The frantic efforts of today to establish many hundreds of plants as threatened or endangered species are by contrast, unwise, unscientific, and fraught with potential dangers to landowners and managers in this country and Louisiana.

In Louisiana, we are fortunate that at present we have only eight species listed as threatened, and four as endangered, for a total of 12 on the federal lists eligible for some degree of preservation or protection. This is not static by any means, and the act of 1973 authorizes a continuing review and adoption of additional species which might become threatened or endangered. Compared with Texas, however, which has over 300 species listed, or even worse, Hawaii, with 1,088 species, Louisiana's problems for the moment at least seem small.
Various lists published in the Federal Register, notably those of July 1, 1975, Volume 40, Number 127, Part V; and June 16, 1976, Volume 41, Number 117, Part IV, show a total of some 1,700 plant species listed as threatened or endangered by the Smithsonian Institution. An August, 1976 deadline was set for response to these proposals by the public.

The Louisiana Forestry Commission, which has been designated by the Governor as the agency responsible for coordinating endangered plant species matters, did respond, asking for various criteria used in preparation of the lists.

Other organizations and individuals asked some of these same questions of the Smithsonian and the Fish and Wildlife Service. In point of fact, the Forestry Commission initiated correspondence on five separate occasions between December, 1975 and August, 1976 to the Director, U.S. Fish and Wildlife Service, designed to secure information on how the list was prepared and who nominated the candidate species, specific locations and ranges, and common names.

As of today, we have no answers to our correspondence, we do not know how these 12 species were selected, nor do we know of anyone in Louisiana who can supply this information.

Parallel and almost simultaneous correspondence between State Forester Tom Tagawa, of Hawaii, the Smithsonian, and the Fish and Wildlife Service, confirmed that the Hawaiian species were chosen from information by botanists having some experience and familiarity with them, by file information, a search of literature, and herbarium records.

We have assumed that the Louisiana species were selected in a similar way, since in direct correspondence with six Louisiana botanists, and indirect contact with four others, it was revealed that there had apparently been no consultation between experts from the Smithsonian or Fish and Wildlife Service and these local botanists.

I mention all of this merely to lend further emphasis to the following significant points which one would normally want to address in the planning and implementation of a scientifically valid endangered species program:
Lists of proposed plants were undoubtedly prepared by experts, but none of these were local people, with local experience or knowledge.

There was no identified extended research or study in the case of difficult or unknown species before classification.

Many of the plants listed occur so infrequently and in such limited distribution that they are unknown to any except their discoverers or taxonomists specializing in certain genera.

Some of the plants listed are known only from one single herbarium species, and have never been seen or collected by anyone since the original discovery.

Some species, probably four of the 12 in Louisiana, have been developed as a result of a highly controversial practice known as "splitting," by which a botanist or taxonomist divides the one old, established species into two on the basis of slight variations in organs or structure.

This procedure is frowned upon by many botanists, and is often done without benefit of research.

Some plants listed may be only transitional, or members of successional communities doomed to pass away regardless of man's activities.

Two of the most offensive provisions of this law are: That the states and landowners are saddled with the burden of proof, and must provide all substantive and supportive data concerning which species are classified or declassified as threatened or endangered. It is, in fact, wholly and completely a declassification process, since the 12 species in Louisiana, or 1,700 nationwide, have already arbitrarily been listed, and it is now the task of the states to get those off the list which may not genuinely belong there.

The other is the "look-alike" or similarity of appearance clause of the Act, Sec. 4e, which gives the Secretary of Interior authority to treat any species as threatened or endangered which look like or resemble endangered ones, primarily just for the convenience of enforcement people who cannot tell the difference, which difficulty might presumably pose an additional threat!
It does appear from an examination of the available information, that the Smithsonian Institution and Fish and Wildlife Service's methods in developing and implementing the endangered species program and lists are subject to serious question by competent professionals in the scientific communities and organizations likely to be influenced by such a program. It would seem that documented investigations and absolutely unimpeachable research following approved and established scientific methods would have been required as the basis for determining whether a species is listed or not. Our citizens have a right to expect nothing less, and would normally conclude, following publication of such lists, that this had indeed been done, and it was now in the best interests of us all to protect those species.

Most of the concerns that state agencies and other organizations would have in connection with endangered plant species have been very appropriately and intelligently expressed by State Forester Tom Tagawa in testimony at a public hearing for the Hawaii Department of Land and Natural Resources on July 14, 1976. Those interested may secure a copy of same by writing to the Division of Forestry, Department of Land and Natural Resources, State of Hawaii, 1151 Punchbowl Street, Honolulu, Hawaii 96813.

Foresters and forest ecologists are generally agreed that this law will have an effect on woodlands and woodland owners, but what the total effects and influences might be is as yet unclear and undetermined, since the political and enforcement concerns have not yet been applied or expressed.

The provisions of the Act as now written cover all federally administered lands and any others which are affected by or involved in the expenditure of federal funds.

In Louisiana this could also include many thousands of acres of privately owned lands on which forestry incentives, cooperative forest management, cooperative fire control, and other kinds of agricultural conservation program funds have been spent in the interest of good forestry. It is not unheard of for the federal hand of control to reach deeply into natural resource and other fields to exercise a strong voice in the use of the so-called "federal dollar."

Unwise application of the law could certainly have devastating effects in the setting aside of forest lands for single rather than many uses, since there are already heavy demands and pressures for the protection of other related but non-timber values, not to mention the continuing conversion of forest lands to uses such as highway and power or pipe line rights of ways.
Thus, in the face of both real and predicted needs and spiraling prices for forest products, this matter of further acceleration of a rapidly dwindling resource base at this time in our history is of critical concern.

When it has finally been determined by appropriate study, and not by guess and estimate, that it is advantageous to protect certain species, it is necessary then to establish what makes up a self-sustaining population, as Mr. Moody has pointed out. Will one acre suffice, or will 10 or 1,000 acres be required to prevent a given species from passing into oblivion, or will no amount of acreage keep this from happening in certain cases? It seems elementary that all of these questions should be answered before and not after protection. In fact, I submit to you that at this point no one knows the answer to this concerning the 12 species listed for Louisiana. What is apparent, however, is that such acreages will need to be minimized rather than maximized, otherwise there is a potential for restriction of forest management practices and forest production to the extent that the living standards of most of us might be unnecessarily affected.

There are other options available, and these should be fully explored and kept open. It is not my purpose in this presentation to discuss options, but I would like to mention two merely to stimulate your thinking. In this connection, endangered plant program officials would be well advised to take a lesson from conservationists dealing with the problem of endangered animal species around the world. A number of these, notable among them some of the big cats and old world antelope and sheep, have been saved from the brink of extinction by introduction into modern zoos, parks, game farms and preserves in other countries, under tightly controlled conditions, where they have been successfully established. In a similar fashion, endangered plants could be propagated and grown by nurserymen and horticulturists for use in parks, arboretums, and other green belts associated with our urban and suburban communities; and these endangered species could be planted in the many single use areas which have already been taken out of the mainstream of forest production, such as state and national parks, historical sites, national recreation areas, wildlife refuges, and wilderness areas.

The ultimate impact of this law upon forest lands and landowners of Louisiana and the South is difficult to predict, but there is potential for considerable interference in both the public and private sector, and the possibility that this may become a highly political and emotional issue also looms strong on the horizon.
What is called for most of all, and seems woefully lacking in this endangered species program is clear heads and sound, realistic judgement applied over a base of factual information and scrupulously correct scientific study and appraisal.

As Mr. Moody has said, caution must indeed be the watchword. In my opinion, Louisiana and other southern states should insist on the following guidelines as a minimum for a program with lasting integrity:

1. That plants listed be chosen on a state-by-state basis, and only by a panel of state foresters, botanists, or experts working with Fish and Wildlife Service professionals.

2. That no plant be listed as a result of "splitting" of established species, unless two years or more of documented research shows it to be a genuine new species.

3. That no difficult genera be listed without two years of research.

4. That no plants subject to habitual successional instability be listed.

5. That no plant be listed unless there is reasonable expectation of some frequency of observation, to be established by local experts. That is, a reasonable, though necessarily limited, number of such plants must be expected to be observed. Listing must not be based upon single, and sometimes old, herbarium species, not seen or recorded since discovery.

6. That lists adopted should have the approval of the governors, forestry agencies, and reputable botanists of the several states.

7. That the Act should not be permitted to work undue hardships on any individuals, groups, or corporations engaged in logging, lumbering, pulpwood, wildlife, recreational, agricultural, and related endeavors.

Once a species is listed as threatened or endangered, following the application of appropriate guidelines, it should receive the full measure of protection available, for it will have met strict standards and become a valid candidate for protection.
Most foresters, I believe, would agree that within reason they have a responsibility of care to help protect some species; that some single use areas should be set aside; and that some noncurrency-generating values deserve to be considered for some degree of protection or perpetuation. For it is, at least in part, these sometimes intangible values which make man, and foresters, individually and collectively, an enlightened, interesting, creative, and, I might add, contributing, part of our marvelous biosystem.

However, I do believe that all values, whatever their present or ultimate identification may be, must be assessed and continuously reassessed with the whole welfare of man as the key ingredient of any authorities or powers which might be exercised in the application of such a program.

It is my opinion, as it is Mr. Moody's, that Congress did intend that there be a highly responsible approach to the subject of endangered species, but I believe we have already gone beyond the point of no return; and that there has already been unnecessary haste, an unfortunate lack of caution, and inexpert bureaucratic interpretations and edicts, which have served to rob the Act of its effectiveness and credibility. Nothing short of further Congressional action in the form of amendments will retrieve it as a respectable and workable force in natural resource management.

SELECTED REFERENCES


DISCUSSION

Question: In my work in the field, I've been asked to identify some of the species of animals listed as endangered, and the information which comes to me through administrative channels is limited as to the conditions these species require for preservation or protection. What are the alternatives available to increase our identification of a species, its range, and its needs? We're not sure if we have the species. I'm speaking about a specific timber stand.

Answer: We have some of these 12 species in Louisiana, and they probably occur in Texas and in other southern states, typically in pine and pine-hardwood stands. Fortunately, we are dealing with only 12 species in Louisiana. Some of their habitat requirements are being identified. We know what these species require and where these habitats are found. This does not mean that the plants actually are in these habitats. Critical habitats are being identified for all of these endangered plant and animal species.

Question: In listing a species as endangered or threatened, does it have to be proved that the species actually is present?

Answer: I'm not sure. The procedures by which most endangered species were listed were highly questionable, and it is not necessary to specifically identify the actual presence of these plants in an area—in a state or a portion of a state—in order for them to be listed. This is one of several offensive features of the Act. Many of the species were arbitrarily listed, and it becomes the responsibility of the states and the affected or authorized agencies dealing with them to identify the presence or absence of these endangered species and to get those off the list which do not belong on it.

Question: If you have a forest management operation in northwestern Louisiana, and it is declared that there is a possibility that the red-cockaded woodpecker is present, is it the responsibility of the administrator of the agency involved to determine whether indeed there is a red-cockaded woodpecker in the particular area?
Answer: No. The administering agency there would be the U.S. Fish and Wildlife Service, and it is not their responsibility to prove this. They merely need to indicate that the red-cockaded woodpecker is threatened in northwestern Louisiana, not necessarily on your land, or even on adjoining lands, but only that this woodpecker does exist in this part of the state. If you were questioned about the matter, it would become the responsibility of you and your organization to prove that it did not exist on your lands and therefore would not require any modification of your management practices.

Question: I have the impression that the U.S. Fish and Wildlife Service has reduced the number of endangered species from about 1700 to something like 1500.

Answer: This matter is still in limbo and the situation is fluid. The Fish and Wildlife Service is backing off on the whole question of endangered species and is now considering the possibility of reducing the endangered plant list to only 17 species. But we do not know what the outcome will be.

Question: Isn't there some evidence that the law may be amended?

Answer: Yes, there is.
PRESSURES FROM ENVIRONMENTAL ORGANIZATIONS

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For many years foresters and other professionals charged with managing forest resources were left to their own designs. In the South they were faced with a seemingly impossible task of stopping wild fires, controlling overgrazing, and reforesting worn-out fields where highly productive forests once stood. They enjoyed a good image and a great degree of credibility because people who cared could see good results from their efforts. Yes, in those days foresters were left alone—so alone, in fact, they worried about what seemed to be overwhelming public apathy toward conservation and wise use of the resources. Not many people cared about the forests, and from all reports there were not many forests left in the South to care about. Foresters were frustrated by man's stupid use, abuse and depletion of the land's resources. The hope and dedication of a few foresters, along with the strong support of a few citizens and conservation organizations, spearheaded the recovery of vast areas of southern forests. I don't mean to imply that a few foresters and well meaning citizens did the job all by themselves—the depression came along and such programs as the CCC and WPA helped plant millions of trees.

The main point I want to make here is that foresters didn't cause the decimated condition of the land that existed in the South 40 years ago, but they did contribute significantly to restoring a forest cover on these lands, restored to the point that people now have forest resources to care about. At last, the public cares... cares so much in fact that forest managers, both public and private, are at times getting more help than they want. The day of eroded hillsides and fires reaching as far as the eye could see are mostly gone and other issues and concerns have taken their place. No longer is there just a handful of concerned citizens and one or two conservation organizations helping out. There are many—so many it's hard to know who they are, what
their purpose is, and what they are doing. Most are not called conservation organizations in the traditional sense anymore, because they don't know, don't understand, or refuse to accept the philosophy of wise use and sustained yield of natural resources. Instead, most are called environmental or preservation organizations because they are more interested in preserving than conserving and improving through responsible management.

Some of these groups have been around for a long time, and, in spite of a few taking recent positions that have been very unpopular with most forest managers, most of the old-line organizations have made significant contributions to the development of forest resources. Organizations such as American Forestry Association, the Izaak Walton League, and the National Wildlife Federation have traditionally given staunch support to professional forest management. Most of these have in recent years broadened their scope and are occasionally aligned with other organizations that do not represent what resource professionals feel is a balanced perspective. But, in all honesty, we can't lose sight of the many valuable contributions they have made to forestry—nor can we overlook their potential to provide strong support for balanced forest resource management in the future.

Before we get into how these organizations exert pressure and influence on forestry, let's take a look at a few of the organizations.

---The Sierra Club is one of the oldest. It was founded in 1892 by John Muir. At present it has about 140,000 members and 49 chapters across the country. The Sierra Club is organized to protect and conserve the natural resources of the Sierra Nevada, the United States and the world; to undertake and publish scientific studies concerning all aspects of man's environment and the natural ecosystem of the world; and to educate the people of the United States and the world to the need to preserve and restore the quality of that environment and the integrity of these ecosystems.

---The National Audubon Society is also among the oldest and largest with a membership in excess of 75,000. It was founded in Mexico City in 1905. Its purposes are to promote the conservation of wildlife and the natural environment; and to educate man regarding his relationship with, and his place within, the natural environment as an ecological system.
---The National Parks and Conservation Association was formed in 1919 to promote the welfare and protection of national parks, related fields of conservation, and restoration of the natural environment. It has about 45,000 members.

---The Izaak Walton League of America was founded in 1922 and has a membership of 56,000. The League's purpose is to educate the public to conserve, maintain, protect, and restore the soil, forest, water, air and other natural resources of the U.S. and promote the enjoyment and wholesome utilization of those resources.

---Defenders of Wildlife was organized in 1925 and is reported to have approximately 30,000 members. This organization, as its name implies, is dedicated to the preservation of all forms of wildlife. It promotes protection and humane treatment of all mammals, birds, fish, and other wildlife and the elimination of painful methods of trapping, capturing, and killing wildlife.

---The Wilderness Society came along in 1935 and has a membership of about 90,000. Its purpose is to secure preservation of wildernesses, carry on an educational program concerning the value of wilderness and how it may best be used and preserved in the public interest, make and encourage scientific studies of wilderness, and mobilize cooperation in resisting its invasion.

---The National Wildlife Federation is the largest of conservation organizations with 3,500,000 members. It was organized in 1935 and is dedicated to arousing public awareness of the need for wise use, proper management, and conservation of the natural resources upon which all life depends. The Wildlife Federation undertakes a comprehensive conservation education program, distributes numerous periodicals and educational materials, sponsors outdoor education programs in conservation, and litigates environmental disputes in an effort to conserve natural resources and wildlife.

---Ducks Unlimited was organized in 1937 and has a membership of 200,000. Its purpose is to perpetuate waterfowl and other wildlife on the North American continent. It establishes, promotes, assists, and contributes to conservation, restoration, and management of waterfowl habitat.
Those are some of the organizations that have been around for a while and are still very much on the scene. There is one I didn't mention and that's the granddaddy of them all—the American Forestry Association. It was founded in 1875 and has been a leader and strong force for responsible conservation, good management and wise use. A.F.A.'s objective is the advancement of intelligent management and use of forests, soil, water, wildlife, and all other natural resources necessary for an environment of high quality and the well-being of all citizens. Most consider AFA a true conservation organization. Its objectives have remained steadfast and its efforts unrelenting on behalf of conservation and wise use. We owe much to Bill Towell's leadership in helping open up and facilitate communication among several polarized special interest groups in Washington, D. C.

It's interesting to note that all of these organizations were established prior to 1937, and twenty years passed with very little activity in organizing environmental organizations. Then along came . . .

---Friends of Animals in 1957. That group has a reported membership of about 70,000, and the organization is dedicated to regaining ecological balance through preservation of wildlife's territory and elimination of human brutality to animals.

---Then in 1959 Trout Unlimited was founded. They have about 15,000 members and are dedicated to the preservation of clear water and proper management of water and trout populations.

Then, came another period of calm for the environmental movement until the late '60's. Much like the 20-year period from 1937 to 1957, this period was characterized by other issues and other priorities. The hippie and yippie movements saw thousands of well-educated, upper-middle class young Americans abandon traditional life styles and take to the streets and the hills in search of the good life. Out of these so called "return to the earth" movements came organized protest over American involvement in Vietnam. When the war began to wind down and was no longer an issue, many of these groups turned their attention to the environment, to attacking the American system and the establishment.

In 1967, the Environmental Defense Fund, Inc. was established. This is a national organization of lawyers and scientists which serves as the legal action arm for the scientific community. It
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has a public membership of 41,000, a 700-member scientists advisory committee and a legal advisory committee. At present, they have approximately 70 cases in varying stages of litigation dealing with such areas as pest control, water resources, land use, energy, environmental health, transportation, and wildlife.

In 1969 came another pre-Earth Day organization.

---The Friends of the Earth. This is an International organization with a membership of about 23,000. They are committed to preservation, restoration and rational use of the earth. Most of their efforts are concentrated on legislative and political activities.

Out of Earth Day in April, 1970 came more organizations. Environmental Action, Inc. was formed with an orientation toward political and social change in a broad range of environmental issues.

---The Natural Resources Defense Council, Inc. was also founded in 1970 and has a membership of 30,000. This organization is dedicated to protecting America's endangered natural resources and improving the quality of the human environment. They monitor government agencies, conduct scientific research, and carry out an active program of litigation and public education.

That's enough about the most active major organizations. There are some others of course, but time will not allow us to discuss them here.

Another type of organization you'll be seeing more of is the ad hoc environmental organization. These are usually formed for purposes of litigation and are either sponsored by one of the major organizations or are splinter groups made up of some of the more radical and dissident members. The Texas Committee on Natural Resources, the Newton County Wildlife Association, and the Arkansas Society for Preservation of Natural Resources, Inc. are good examples.

Before we get into how some of these organizations operate, let's look at an organization profile. The National Audubon Society published a report in its January, 1977 issue of the Audubon magazine entitled "Average Environmentalist--A Profile." It reports the results of a survey of Audubon Society members and reveals that the average member is an executive earning
$36,000 annually. Twenty-six percent are working in top and middle management jobs, and 40 percent are engaged in professional and technical occupations. The median age is 44 years and the membership is 58 percent male. Eighty-five percent attended college and 43 percent attended graduate school.

Perhaps of more interest are the environmental concerns revealed by the survey: As you might expect, eighty-one percent of the members are especially interested in wildlife conservation. Then in descending importance come wilderness preservation, water and air pollution, land use planning, population growth, forestry (54 percent), energy, noise, poisonous substances, and strip mining.

At least forestry was not last, but it's way behind those areas that most other environmental organizations also think are most important. While the results of this survey would not necessarily hold true for all environmental organizations, there are more similarities than some would care to believe. It has been known for some time that the average environmentalist comes from the so-called upper middle class to rich segment of our society, and most are college graduates with a high percentage of advanced degrees. My guess is that a survey of all the organizations I've mentioned here would reveal some differences in particular interests, but you can bet that most areas of special interest identified would be well above forest management on the list. And if you've watched them closely you know from their actions that most would tend to indicate a greater interest in preservation than in forest management.

What we have is a collection of highly sophisticated special interest pressure groups that have the resources, a strong dedication to their cause, and the know-how to use established institutions to get what they want. While their objectives are wide ranging, you'll note a commonality of purpose, particularly in the Earth-Day era organizations.

Just how do these groups operate and how do they go about meeting their objectives?

Traditionally, the old-line organizations operated primarily with a grass roots approach. Many of their organizers and members were foresters and other related resource professionals who knew and well understood the problems of their day. Many had their roots in the land and had witnessed the use and depletion of natural resources with reckless abandon. Early conservationists
were a dedicated lot who worked hard at the local level to arouse attention to the problems while, at the same time, working to solve the problem by their own example and persuasion. While not nearly as dramatic as environmental actions today, nonetheless the efforts of the early groups were steadfast and effective.

The grass roots approach is still used by many groups today, but their emphasis is different.

Federal resource management agencies have felt the greatest impact of environmental group pressure, primarily because of their broad national constituency. It's easier to change federal law and influence national policy because there is often little immediate recognition of impact at the local level. State agencies experience somewhat the same pressures but to a lesser degree and local governments have been virtually unaffected by environmental pressures because these groups have not found it easy to deal with their neighbors about local environmental problems. By the same token they have not been able to deal effectively with the private sector on a direct basis. Instead they find it easier to work at the national level to establish laws and regulations to get at local problems and problems they perceive to exist in the private sector.

An intensive grass roots attack on environmental issues will continue but the days of logical persuasion and influence by good example may be gone. That grass roots approach today is only phase one of what's often a multiphase strategy.

The National Forest Land Use Planning process is a good example of the tactics being used. Environmental groups take part in the public involvement phases of unit planning, along with other interested citizens. Planners and line managers consider all the comments and then make decisions on future management, taking into consideration the land's condition and capability and the laws and regulations guiding the agency. Environmental Impact Statements are filed and the plan is complete.

If the environmental interests don't agree with the plan, they often move to phase two—the administrative appeal process. The appeal goes first to the Regional Forester for an administrative review of the decision. The appellants usually get a chance to present the basis of their appeal in a meeting with the Regional Forester or his representative. He then reviews all the facts and makes his decision. If the appellants disagree with this ruling, they can appeal to the Chief and if they don't like his decision they can in some cases appeal to the Secretary of Agriculture, or go to step 3—litigation.
Some groups have been quick to enter into litigation without going through the public involvement and appeal processes. We'll see less of this in the future, though, because the courts are becoming more reluctant to accept cases until all other avenues of recourse have been exhausted.

Litigation is the most direct approach environmental groups use to get what they want. As I mentioned earlier, ad hoc organizations are often incorporated for this purpose. This masks most of the individuals involved and protects larger established organizations and individuals from liability.

However, most groups and individuals who have involved themselves in environmental law suits have not been held accountable for their actions no matter what the consequence might have been. Given the complexity of most laws and the complexity of forest resource management it's not very difficult for any group with a cause, a free lawyer, and no risk of liability to sue a resource management agency. Whether there is legitimate basis for the suit is often unimportant to the plaintiffs, because their action usually will result in the agency deferring the planned action or changing the practice until litigation is completed, which often takes years. You can expect resource managers to spend a lot of time in litigation during the next few years. We'll not likely see another case as widespread as was the Monongahela, because most environmental groups don't want to run the risk of attracting that much attention again. Instead they'll pick away at local issues such as unit planning, wilderness, threatened or endangered species, water quality, etc.

Perhaps the most common strategy is the environmental lobby. It's well organized and it's influential. You could almost conclude that some of the environmental organizations have adopted a slogan like, "Every Environmentalist's A Lobbyist."

I don't mean to imply there are droves of them working the halls of Congress. But members of environmental organizations do take the time to write members of Congress and other government officials in Washington. They not only write themselves, they get friends and neighbors to do so as well. They also stir up the issue locally and promote news stories in local papers. They know that unless a member of Congress has overwhelming evidence to the contrary he will vote on the basis of his mail and news clippings he reads. Most of the major environmental organizations have registered lobbyists in Washington much the same as do other major special interest groups. Environmental lobbyists often work
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together on issues and have been known to unofficially divide environmental legislation into specific areas for each group. In this way no more than a few environmental lobbyists would work on a single piece of legislation, except for major bills.

Another common tactic is the formation of the coalition. This is used to gain strength and get as broad a base of public support as possible. A well organized coalition also represents a united front to Congress which makes them particularly effective in making recommendations during mark-up sessions and during conference committee deliberations.

There are many other tactics used by groups to influence change in their direction, but those I've covered should give you a clear picture. As I mentioned before, environmentalists are dedicated to their cause and most honestly and sincerely believe they are right. We all know they are right in their quest for a better environment, but the differences and conflicts arise over individual prejudices on the best approach to attain that quality environment. We must all accept the fact that man is an integral part of the ecosystem. We must learn to live in harmony with it and wisely use the earth's resources while passing on the same opportunity to future generations. Single purpose activism motivated more by personal prejudice than facts is not the answer.

My charge today was to talk about environmental special interest groups, but I hasten to say they don't have the market cornered on single purpose thinking. There are hundreds of others working for their own single purpose cause without complete regard for the public interest. Special interest influence and pressure have long been powerful forces in shaping laws, regulations, and the administration of those laws and regulations. Developing laws and regulations is a public process, but the average citizen rarely gets involved. Special interests are always involved, and in the absence of reason, logic, and factual understanding the process cannot work effectively nor can it work in the public interest. Public understanding of the issues is the only way the system can work as it was intended.

Where can the public learn true facts about forest resources, and just how can they develop a better understanding of such complex issues? Only from foresters and other related resource professionals. Resource professionals must care enough to re-ignite the missionary fervor their predecessors had when they helped organize and lead many of the organizations in a positive and effective conservation effort.
Resource professionals must rid their professions of the sensationalists and the so-called ambulance chasers (sometimes referred to as "Biostitutes"), who distort biological fact to fuel emotional conflict, who shed doubt on reasonable thinking, and who go from cause to cause without regard for professional ethics or moral standards.

Foresters must feel as strongly about professionalism and the need for professional resource management as most environmentalists feel about preservation. Foresters must again actively involve themselves with these citizen organizations. They must re-establish their credentials and develop credibility and trust through honest effort, professional behavior, and objective reasoning.

DISCUSSION

Question: It is often said that educating the public as to the need for forest management practices for future commodities is our only weapon in maintaining our dignity as foresters in a professional and environmental world. The membership of some of these strong environmental organizations includes a high percentage of highly educated people. Should the forestry industry put more emphasis on educating and influencing these highly educated people or should it aim more at the general public?

Answer: I would say we have to target messages at various groups. Some of us have operated under the illusion that we were or are dealing with people who do not understand the relationship of trees and the commodities produced from them, in the same manner that urban children do not associate cows with milk. Statistics have proved that we are wrong in assuming this. When you are dealing with an organization such as the Audubon Society, the average age is about forty-four years. All of these people did not grow up in the inner city, and they are not ignorant of forest resources and the various commodities which come from them.

We have to target our message to the educated and to adults as well as young people. It has been said that young people are more impressionable. This has been proved by the Smokey-Bear campaign. The Woodsey-Owl campaign on pollution promises to be equally successful.
We have to tell the whole story. Too much emphasis on commodities from the forest can sometimes distort our message. As important as they are to our way of life, foresters cannot overlook the fact that there are other resource values on the land and they have to be managed as such. They cannot be ignored. Society is not ignoring them. With proper management we can have both.

Comment: There are only 30,000 foresters in the U.S. and only two thirds of those are active in the professional society. We cannot overlook participation in these environmental groups. We have all bumped up against radicals, but I've never yet seen a radical that on a one-to-one basis you couldn't communicate with. I think this is a big opportunity that we overlook. A one-to-one contact can have a tremendous effect on the public even though we are low in numbers. If you approach one of these radicals and get your message across to him then it will get to others through him. I urge you as professional foresters to become a member of some of these organizations and participate.

Answer: That's right, we have to participate. We constitute only 30,000 foresters, but in comparison look at the membership of these environmental organizations.

Look at where we were 75 to 80 years ago. At the turn of the century there were only a few foresters in the U.S. Due to the concern of these people and professionals in other related fields, a bonafide conservation movement was started in this country through the efforts of many conservation organizations.

Trying to affiliate and get closely involved with some of these organizations is difficult, because we occasionally criticize some of these groups because they do not seem to have the facts. Actually we are the only place they can get them. If we isolate ourselves and do not try to work with these people, then whatever we get, we have coming to us. Our fate is very much up to us. Most of these people are honest and sincere. Spend some time with them. Get them to look at your point of view more objectively. They will appreciate the opportunity.