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Public Interest in Private Land

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FOR SEVERAL YEARS NOW WE HAVE BEEN ASKING our graduate students, in their preliminary examinations, several fundamental questions. These questions, like all real questions, have no definite answers. The questions have usually been raised about like this: (1) How are public and private interests in land related? (2) How can you determine the extent of public interest in land? (3) What are some of the techniques the public uses to protect its interest in land? These questions form the basis for this chapter. In discussing these questions and possible answers, association with the people in Wisconsin who have for many years been carrying forward a land-use program involving public and private interests will be extensively used as illustrations. The success of such a program is the most valuable evidence we have on the questions raised.

Many economists define this subject outside the field of economics. Actually, we are dealing with questions in *political economy*. It is

unfortunate that many economists have dropped the concept of "political" in current thinking. We, as a nation, are becoming increasingly conscious of the public interest in private land. Witness the wide public reading of current books by Neo-Malthusians and the rebuttals or the almost universal inclusion in public programs of provisions to save the soil. To be sure, the public interest in land is not a recent phenomenon. Certain mineral rights were reserved for the public in our earliest land laws. Significant public consciousness developed in the United States at the peak of the lumbering in the Lake States, 1890 to 1910. The interest in the first World War shifted to food production and farm development. The public encouraged the development of farms in such areas as the Lake States forest region and the plains portion of the Dakotas west of the Missouri River. Then came the new public domain (the land nobody wanted), the dust storms, and the untiring and forceful presentation of soil losses by such leaders as H. H. Bennett.

The vital statistics of the topsoil have become common knowledge in urban as well as rural households. There is no question but that the public has been interested in land in a major way since 1890 and that interest has been rapidly increasing in the last ten years. However, we should mention a few of the more important reasons for the increasing public interest in private land. They suggest that public interest in land will continue. (1) We are only now becoming aware of the fact that only about 10 per cent of our population in the United States produce the agricultural products necessary to support our high standard of living. The public, at least those outside of agriculture, are concerning themselves about the future food supply—both amount and price. (2) We have been forced to accept a position of world leadership. In many parts of the world lack of adequate food supplies makes it difficult to have even such a basic essential of progress as order (freedom from civil wars). During World War II and since, our citizens have had many opportunities to observe the conditions in other countries. Farmers from Iowa who paid their expenses to visit with the farmers of Europe did an outstanding job of making rural people aware of the conditions in other countries. (3) The statistics on population growth are receiving publicity. World population in 1650 has been estimated at about one-half billion. By 1950, world population will exceed two and one-third billions—a fourfold increase in 300 years. And, although estimates of future world population vary widely, most estimates for 50 years hence fall between three and five billion.

The real question then is not whether the public has an interest in land, but rather one of how to go about analyzing a situation in a way that will help to get something done about it.

HOW ARE PUBLIC AND PRIVATE INTERESTS IN LAND RELATED?

The economic philosophy of the public in the United States and a major portion of the economists answer this question rather simply. The national wealth is a summation of individual wealth, so we place our efforts on maximizing individual profits. The argument highly simplified runs something like this. Each individual (firm) looks ahead to estimate what other individuals will pay for different products. Then he combines his resources to produce the products which will give the greatest profit. If he miscalculates and the price falls, he may lose money or make less than expected. He will then take a new look ahead and make adjustments necessary to bring the greatest profit. The consumers will in the process get what they want most (are willing to pay most for) and the wealth of the nation will be maximized. Admittedly this argument is oversimplified. The important point is that some such concept is in the minds of most of our people. Economists have spent a major portion of their time understanding the principles involved in maximizing the profits of the individual (economics of the firm) or the principles of wise spending.

When we look at specific situations we often have to say "yes but."

The lumbering operation in the Lake States was carried on by individual firms. Much of the timber was wasted and the land "cut-over" was of little value for many years. Communities were stranded with no resources. Did this operation increase the wealth of our nation? Even today many timber users are engaged in wasteful practices—cutting small trees before the profitable growth is put on, etc.

The plow moved into the plains and turned over good grass to produce wheat. Those who saw the area in 1930 wondered whether the result was an increase in wealth. Now the plow has moved in again over the loud protests of those who want to save the soil.

We have all seen a picture of a farm in northeast Iowa, southeast Minnesota or southwest Wisconsin with the land ruined by gullies or of the results of flood waters leaving soil a foot deep around the buildings of a valley village.

These are a few of the illustrations which demonstrate that the individual in search of his own best interests does not always perform in the public interest. This is the critical point for most people, particularly economists. You can either define yourself right out of the problem and spend your time on the further elaboration of the economics of the firm, in which case you just refuse to acknowledge a problem, or you can become disillusioned with the whole system. Many things can happen to you then.

Of course, we should do neither. Rather, we should accept the economic philosophy of the public and the most refined mathematical analysis of the economist. Then in those instances where the public interest appears in jeopardy we should attempt to see what factors are causing the trouble. Here are a few examples.

You have probably heard many times that the ranchers of the West overstock the range; buffalo and grama grass are replaced by inferior grass and on many acres the land is laid open for serious wind and water erosion. As you get closer to the situation you see the land most overgrazed is uncontrolled (wild) land or land on which the lease is about to run out. Much can and was done to use the land better by simply working out methods of getting better control of the land—grazing associations, soil conservation districts, requirements for written leases by the Agricultural Adjustment Administration and Farm Security Administration or blocking into operating units.¹

The lack of interest in soil saving and development practices by tenants who do not expect to remain on the farm, by owners who are about to have the farm foreclosed, or by elderly farmers with no children to take over is commonly known. These are all illustrations of individuals who lack security of expectations. And this lack is one of the most important reasons why more people do not adopt proven soil conservation practices.

The paper making corporation, with its large investment in plant, expects and wants to continue in production over a much longer period than the saw mill of the past. As a result, paper companies are practicing good timber management on their lands in Wisconsin. Security of expectations affects timber management too.

¹ R. J. Penn and Charles Loomer, "County Land Management in Western South Dakota," S. D. Agr. Exp. Sta. Bull. No. 326, September 1938. R. J. Penn and Taylor, "Management of Public Lands in North Dakota, N. D. Agr. Exp. Sta. Bull. No. 312, May 1942. Charles Loomer and Craig, "Collective Tenure in Montana," Montana Agr. Exp. Sta. Bull. No. 406, February 1943.

Market prices which do not accurately reflect public needs may push an individual into a use of land which appears contrary to public interest. Cotton, wheat and potatoes are currently priced so as to discourage individual adjustments often recommended in the public interest.

An individual should not be condemned for acting to maximize his profits. Where his interests coincide reasonably well with the public interest no problem exists. In fact, government action in this area has no place. When an individual's quest for maximum profit leads him to do things not in the public interest: (1) we should be very careful that we have correctly determined the public interest and not some individual's statement as to what the public interest ought to be; (2) we should look to the reasons for the existence of the disparity and try to make adjustments which will bring the two interests together. Adjustments of this kind will in many instances increase the individual's profit possibilities and no investment of public resources is necessary (increased control of grazing lands and change in tax procedure for forestry land are cases in point).

TO DETERMINE THE EXTENT OF PUBLIC INTEREST IN LAND

This is the difficult question. Our legislators must answer it nearly every day. They must translate their estimates into dollars. They must divide the limited dollars among many projects with varying amounts of public interest and must decide whether more or less taxes are desirable. Too often we say they are not acting in the public interest. Yet what is the public interest in land? Technicians of nearly all kinds have attempted to work out formulae to answer this question—zoologists, botanists, agronomists, engineers, lawyers and economists. When they get through, practically no two will agree. Why? It is partially because they fail fully to realize what is involved. First, the question is a valuation. This means a judgment as to which of the several alternatives will result in the greatest returns. Second, the judgment is a public judgment rather than an individual's. Public judgments are not simple to make. And third, the judgment is made to a large extent in terms of intangibles—the value of recreation to urban people, the value of excess power for national security, the value of lives that may be lost in floods. About the only place public judgments can be reduced to the convenient dollar yardstick is when our legislators appropriate money to save or develop land. In public regulation such as zoning, weed districts, and the like, the public valuation is not reduced to dollars.

The question of public interest in land is a valuation—a judgment. As such the public interest in a particular piece of land cannot be established by formula. For instance, a large part of our literature on forests sets up the rule that the cut should not exceed the growth. Yet during the 1930's when men were unemployed, we spent large sums of money to improve the quality of timber growth and to plant trees which would increase production. When we had unemployed men, equipment, and other resources, the public costs of forestry activities were not much in excess of what the costs would have been if nothing were done. The costs of unemployment are high. Compare that situation with the one in which we found ourselves during and immediately following World War II.

During the war not many men could be spared to work in the woods at timber stand improvement or planting trees (incidentally, the tree planter was perfected and came into use because of manpower shortage during the war). At the same time the timber cut was heavy and in general exceeded growth. We urgently needed wood for paper, for cartons, for cantonments, etc. Following the war the drain continued. We need housing. The point is that the public interest in forestry land must be continually revised and will not follow the cut-growth rule of thumb. There is no reason why in some periods we should not make investments to increase timber growth far in excess of cut. And in other periods we may have to take a calculated risk and cut in excess of growth.

Public interest in soil losses follows a pattern quite similar to forestry. There is much literature to the effect that we should prevent all soil loss. If that had been completely followed in the past, we would be without some of our most valuable scenery such as the Grand Canyon and our mountains. Also, we would be without some of the world's most fertile soil—those laid down by wind and water. The decision on saving soil will not be based on the simple rule that all soil must be saved. We will decide how much to invest in saving soil by relating the returns from that investment with returns if the investment is made in some alternative way. Some areas may cost much more to save than the cost of developing new land, improving existing land or developing substitute products. The question may come at us in a different way. Many feel that grass land is being plowed up for wheat, and soil will be lost in the process. The State Department says, however, that we must send wheat into famine areas of the world if our international efforts are to result in peace. We send the wheat and the price is kept up. More grass is turned over. How would you decide such an issue?

Valuations—judgments—are the basis for determining both public

and private interests in land. If we accept some rule of thumb formula as giving the public interest in land we may easily misdirect our efforts. Large sums of money can be used to put "the rule of thumb facts" before the people. It has been said that an individual can afford to save all his soil or that the public can afford to make an investment sufficient to save all soil. When neither individuals nor the legislators go as far as this kind of an argument would indicate as desirable we are apt to become disillusioned and say people are ignorant or legislators are not acting in the public interest. The danger, of course, is that disillusioned technicians will want to direct individual action and they may be successful. Actually, in a large majority of the cases the individuals and their legislators have included a different set of factors in their valuation.

We are here concerned with how public valuations are made. It is not an easy matter for an individual to decide whether to buy a piece of land and how much he should pay for it (valuations). But we will undoubtedly agree that an individual's valuation is not as difficult as a public valuation.

Arriving at the public interest in land is a continuous process of public policy and program formulation. It is the process that counts. If the means are faulty the objective will not be satisfying even if reached.

Somewhere along the line we have acquired the habit of hiring other people to do our work for us. We hire a forester, soil scientist, economist or other technician to look at a piece of land and tell us how it should be used and how much the public can afford to regulate or spend to get it into the recommended use. Public valuations should not be made by technicians acting for the public. The technician will have to make his best information available and recommend what he thinks is the best of the alternatives presented. But the people must work at this job. They must participate and make the decisions. They will accept and put into effect their own decisions much more readily than decisions made for them.

Wisconsin has a couple of illustrations on this point. The way in which rural zoning ordinances were developed is an illustration of a procedure which many think is desirable.² Our school district reorganization procedure during the last two years is an illustration of "how not to."

² W. A. Rowlands, F. B. Trenk and R. J. Penn "Rural Zoning in Wisconsin," Wis. Exp. Sta. Bull. No. 479, November, 1948. R. J. Penn, W. F. Musbach, and W. C. Clark, "Rural Zoning in Corson County, South Dakota," S. D. Exp. Sta. Bull. No. 345, September 1940.

In 1929, the Wisconsin legislature authorized the county governments to pass zoning ordinances affecting agriculture, recreation, and forestry. The county boards of supervisors can legally enact a zoning ordinance by the following procedure: (1) pass the ordinance at one meeting, (2) get the approval of the town boards of supervisors in the towns affected, (3) pass the ordinance at the second meeting of the county board and publish. But when Messrs. Walter Rowlands, Fred Wilson, Fred Trenk and the county agents began working with the people of the county and their county boards on the problem of how to develop a desirable land use program, something more than the legal minimum procedure followed.

These are the extra legal steps that were followed by the 27 counties in northern Wisconsin with strictly rural zoning ordinances. First, the county boards formally requested the College of Agriculture, the State Conservation Department, and other state agencies to help in meeting the county land problems—problems of cut-over land, tax delinquency, isolated settlement and high cost local government.³ The formal request for assistance might at first glance seem like an unimportant step. It had the effect, however, of making the technicians a part of a team in the county working on the problem. Second, the technicians worked closely with the county board in preparing as much information as possible on land utilization in the county.⁴

Third, a series of community extension meetings were held at which the land problems were discussed—existing land uses, alternative uses, primarily forestry and recreation, isolated settlement, relief, etc. The land facts were presented on readable maps. Rural zoning was described—what it is, how it might work, and what it might be expected to do to meet the problems of the community. The people at these meetings arrived at the decision as to whether or not to have rural zoning. In addition, they actually drew out the boundaries of the several zoning districts. At many of the meetings there were sharp conflicts between the residents of the community before a decision. The town chairmen were present and as a result there were unrestricted districts. But once the decision was reached it was their decision. The town chairmen were present and as a result there were

³ Hibbard, Allin, *et al.*, "Land Use and Tax Delinquency in Northern Wisconsin," Wis. Exp. Sta. Bull. No. 399, June 1928. Hibbard, B. H., Hartman, W. A. and Starhawk, W. N., "Use and Taxation of Land in Lincoln County, Wisconsin," Bull. No. 406, January, 1929.

⁴ "Making the Most of — County." A series of Wisconsin Extension Circulars.

almost no dissenting votes when the ordinance came up for formal action by the town and county boards (The County Board in Wisconsin is composed of all the town chairmen). In the 27 counties in Wisconsin with rural zoning ordinances the local people restricted about five million acres against future agricultural use and settlement. Incidentally, you can find people in most northern Wisconsin counties who believe they are "the father of zoning." Fourth, although not required by law in the enactment of the ordinance, a public hearing was held to further safeguard private interests and permit everyone to be heard. Actually the extension meetings where the plans were made and the decisions arrived at were most effective in accomplishing the purposes of the hearing. The formal public hearings did not develop any major opposition.

We have here a tribute to those men who were the leaders of rural zoning for their insight into how to make a public judgment. They knew how to work as a team and they knew who must make public decisions.⁵

But we have another illustration in Wisconsin. Our state legislature has established in each county a school committee with authority, among other things, to combine school districts and change school district boundaries. Combination of school districts is, of course, a delicate job. It is hard to keep the decision based on reasonableness. The reaction against the school committees was spontaneous in nearly all parts of the state. A few of the committees did succeed in reorganizing the school districts. In one case the people of a new school district met to elect school officers. The first motion was to adjourn, leaving the district without a governing body, and the Governor had to appoint a school board for this district. The 1949 legislature changed the law to permit people affected a vote on the reorganization plans. The school district reorganization would be much advanced if the program had recognized some of the procedures used in rural zoning.

Before we leave the question of how you determine the extent of public interest in land, we should comment on the problem of placing monetary values on such intangibles as public welfare. There is a lesson in a recent experience of the University of Wisconsin. The University recently received a letter from the Fish and Wildlife Service of the United States Department of Interior. A similar request undoubtedly went to other state universities and conservation depart-

⁵ "From Public Burden to Public Benefit," (the story of Marinette County's Land Program). Wis. Exp. Sta. Bull. No. 483. (Published jointly by the Experiment Station, Wisconsin Conservation Department and Marinette County.)

ments. The letter was a request for the University to help work out a procedure which would place a monetary value on fish and wildlife. A federal law now requires that the Fish and Wildlife Service must be advised of any federal plans for impoundments and an appraisal must be made of the effect of the impoundment on fish and wildlife. This appraisal is to become a part of the plans for the development. The problem is, of course, how can you place a monetary value on intangibles? Commercial, recreational, biological, social, esthetic, scientific, and negative values were listed in the letter and we were to suggest ways of fixing monetary values. The staff member assigned the task of working out a reply had a number of ideas on the subject. Here is some of the reasoning. First, determine the effect of the impoundment on fish and wildlife. What will be the increase or decrease in numbers of fish or wildlife? How will the types change, etc.? Second, determine who is interested in the fish and wildlife and the changes which would be expected as a result of impoundment. What is the nature and intensity of the interest?

Third, get any available indications as to dollar value. Appropriations for fish and wildlife might indicate dollar values. Courts have had to place dollar values on intangibles in eminent domain cases. Foundations pay good money to save the last of certain species. Fourth, have a group of persons representing various interests in fish and wildlife sit down with the technicians to appraise the development. The main result should be suggestions for change in the impoundment plans which would improve fish and wildlife. The group, however, could put a monetary value on the fish and wildlife if they wished.

As you can see, we would minimize emphasis on placing a monetary value on intangibles. Economists have had rather sad experiences trying to place dollar values on intangibles in connection with reclamation and recreation projects. Perhaps they have been trying to do the impossible. The valuation must be made by the public and not solely by technicians. Technicians' results will be more fruitful if they will describe alternatives in whatever terms description is possible.

WHAT ARE SOME OF THE TECHNIQUES THE PUBLIC USES TO PROTECT ITS INTEREST IN LAND?

If we decide that the present use of some types of land or some areas of land does not adequately protect the public interest, what alternatives are available to the public to protect those interests? I have quite arbitrarily grouped the alternatives as follows:

1. Changes in institutions.
2. Investment of public funds as inducements.
3. Land use regulations.
4. Acquisition of ownership.
5. Research and education.

At the outset we should make perfectly clear our belief that you should not generalize on the application of these techniques. Usually we are confronted with a specific problem and various combinations of the techniques will be used as the situation dictates. We should not be drawn into a discussion of which is the best or how much of each should be used. This is impossible apart from the specific situation and the decisions of the persons affected.

INSTITUTIONS MAY BE CHANGED. In a large number of instances where public and private interests do not coincide, the reason may be found in the customs, traditions, social sanctions, and laws which make up the rules governing an individual's activities. Customary rental arrangements, tax procedures, inheritance practices and laws, and, in some foreign countries, religious ceremonies are but a few of the institutions which in some instances have made it difficult for the individual to operate his land in conformity with public interest.

The experience with the Wisconsin Forest Crop Law supports this point and will be described in some detail. The production of timber was not considered very important in the United States much before 1900. Plenty of virgin timber was available. The foresters began to work on timber production problems as the end of available virgin timber came in sight. Mr. Fred Wilson, currently in charge of the Cooperative Forestry Division of the Wisconsin Conservation Department, demonstrated to the people in Wisconsin that trees could be planted and grown. About 1910 he planted several acres to trees at Star Lake. That plantation has been thinned several times and the returns have thus far paid all costs, plus interest on investment. The stand of Norway pine is now about 50 feet high. The foresters can grow the trees. It is a long process, however. Individuals who owned trees had to choose between having their capital in the form of trees (a form that could be and was readily taxed) or having it in the bank. The experience had been to cut and get out. It is not surprising then that the production of trees has been considered by many as a job which can be done best on land publicly owned.

Prior to 1927, the people were asking why is it not possible for timber to be owned, produced, and managed by individuals? The answer most often heard was taxes. All the tax procedures were based

on the supposition that land would yield an annual income. Here was a crop which might take 50 years to harvest. Then too, the individual had seen how the more valuable stands of timber had a higher valuation. If he were to make a 50 year commitment he needed to know definitely what his taxes would be. He knew his taxes would be increased as his stand approached maturity and he didn't know how much.

The Wisconsin Forest Crop Law passed in 1927 established essentially a program to change the tax procedure so that individuals could more easily own and grow trees. And at the same time local units of government were advanced funds to carry on government services. Here are the essential provisions: The individual owner enters a contract with the state (Cooperative Forestry Division, Conservation Department). He agrees to practice good forest management on his land. He agrees to pay an annual land charge of 10 cents an acre to the local government, which amounts to a land tax and becomes a part of the general fund of the local governments. He agrees to pay the state 10 per cent of the value of any wood products harvested from the land. The state agrees to advance the local governments 10 cents an acre annually in lieu of taxes. The advance by the state is repaid by the 10 per cent severance tax.⁶ About 200,000 acres of privately owned land is entered under the program. Although this is not a large acreage, the amount in the program has increased about 40,000 acres since 1945.

In the Forest Crop program we have an example of how institutions can be changed so that an individual need not operate contrary to public interest.

PUBLIC FUNDS MAY BE INVESTED AS INDUCEMENTS. You are all familiar with this type of technique. Certain practices may be desirable from the public standpoint but the individual does not get sufficient returns to warrant his investment in the practice. The public may contribute that portion of the investment which is not profitable for the individual to make.

Federal programs have been largely of this type. The best known is the conservation program of the P&MA (AAA). A farmer can earn an amount of money (allotment set up for each farm) if he follows a prescribed number of practices recommended for his area.

⁶ Wehrwein, Geo. S. and Barlowe, Raleigh, "The Forest Crop Law and Private Forest Taxation in Wisconsin." Wis. Cons. Dept. Bull. No. 519, Madison, January, 1945.

The Wisconsin Legislature has used inducements in their recent revision of the school district reorganization law. State aids to school districts have been increased. The amounts of aid will depend in part on the improvements made in the schools.

Several difficulties usually attend this type of program. Public money has been used many times as an inducement to get a new practice started. The payment is used to overcome inertia. Also, payments are made to the individual for the use of his operation as a demonstration. The TVA test demonstration farms and some of the SCS demonstration farms are cases in point. Payments for this purpose should be clearly understood. They should be stopped when the inertia is overcome or the demonstration completed—either successfully or unsuccessfully. There is a possibility that such inducements will be continued after their purpose has been fulfilled.

Another difficulty is the possibility of paying individuals for doing something that is profitable for them to do themselves and that they would do without the inducement. This is a charge sometimes directed at the P&MA soil conservation program. A closer tie between the county P&MA committees who are elected by the farmers and the local SCS personnel who are usually trained soil scientists would overcome this difficulty in short order, particularly if both were parties to setting up a schedule of practices for each farm which would be used as a basis of conservation payments.

REGULATIONS ON LAND USE CAN BE IMPOSED. Zoning and the unused authority vested in most soil conservation districts are examples of this type of technique. Land use regulations are passed under the general police power authority of the state. Police power regulations were developed to protect one individual from the actions of another individual. The authority has been expanded in recent years to permit regulations which protect the public interest.

In zoning, districts are set up and the uses permitted in each district are established. An individual owning land in the district must use it for the purposes permitted. If he does not the governing body can evict him. Most zoning ordinances contain provisions protecting individuals. Land in use in conflict with the ordinances at the time of passage is considered a nonconforming use. That use can be continued. Also, regulations must not be arbitrary and must have a relation to the purpose. Some of the recent zoning ordinances specify that nonconforming uses must cease after a certain number of years—long enough for the value of the use to be depreciated.

Authority to enact land use regulations has been given to soil conservation districts in most states. The procedure varies by states. In general, the supervisors of a district may propose the regulations which must then be approved by a vote. Only two out of the more than 1,900 districts have enacted land use regulations—McKenzie County, North Dakota and one in Colorado. In neither are the regulations effective at the present time. Soil conservation districts have the authority to pass regulations which require the immediate stopping of present use or practices. For instance, a regulation prohibiting cultivation of all slopes of over a certain degree could be passed and the farmers would have to stop cultivating such areas,

We have in Wisconsin pressure to regulate the cutting of timber on private land. Several laws have been introduced containing such regulations. We believe timber cutting regulations could possibly be established under the authority of soil conservation districts.

Police power regulations do limit an individual's actions. If the individual loses a valuable use because of the regulation, he is not reimbursed. Caution is necessary in their use. An overwhelming need should exist for the regulation and the regulation must be reasonable. The people affected must understand the regulation and in the case of land use regulations should participate in their formulation.

THE PUBLIC MAY ACQUIRE TITLE TO LAND. The public owns considerable acreages of grass land, forest land, recreational land, historical sites and strips of land adjacent to highways. Part of this land was reserved from the public domain and part has been acquired more recently by eminent domain proceedings or tax reversions. If the public decides there is no other way to protect its interest in land, the land may be acquired by eminent domain proceedings. The land acquired must be for a public purpose and the owner is paid a reasonable price.

It should be remembered that the acquisition of ownership does not in itself settle many of the use problems. Procedures for use have to be developed which are satisfactory to the individuals who will use the land. This is public land management and is a big subject in itself. In forestry and grazing land, individuals in search of a profit will use the resource—exploit it. Arrangements have to be worked out which will give these individuals some security of expectations. The question of who is to get the resource increment on public land when it is ready to harvest has not often been satisfactorily answered. This is one of the problems ahead in our county forest program in Wisconsin.

RESEARCH AND EDUCATION. Our nation is great because we have made available such excellent facilities for research and education as our land grant colleges. The results have paid off the public investment many times over.

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