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## **Timber Vs. Wildlife**

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Foresters who are satisfied with present-day concepts of land use should not read L. A. Davenport's article because by so doing they may be less satisfied with these concepts. The author raises many important issues but does not attempt to draw any specific conclusions. This is left for the reader to do for himself.

HERE I am pinch-hitting for my official superiors, and I'm not too well prepared to do it. It should be understood that I had my original training in an agricultural college; not in forestry, zoology, or in game management. I entered the game management field through the back gate, as it were—so it may very well be that my information and understandings are inadequate for this occasion and subject; and no doubt my points of view will prove too local or provincial. However all that may be, for the last several years I have been working with professional foresters and zoologists, and I am at least somewhat acquainted with the current literature on "land use affairs." The more I have to do with these affairs, the more I realize that there are and probably always have been zones of conflict between the three major land uses: agriculture, forestry, and recreation (including wildlife management). At times I have attempted to analyze these conflicting points, but the more I try the more puzzled and confused I seem to become. So here I am reporting on some of the puzzling and confusing points or zones; and if I therein demonstrate my individual ignorance or ineptness, that should not in any way implicate my superiors or my organization.

First, I should certify to the conviction that the land use technologies of agriculture, forestry, and wildlife management are all valid, real, and due to expand indefinitely. Wildlife management as we know it today is by far the youngest of these land use technologies, but with the impetus which it has received the last decade it seems to be taking a coordinate place with agriculture and forestry. All three are now similarly established on national scales and with research and experiment stations, extension and demonstration phases, administrative phases, and so on.

<sup>1</sup>An address delivered at the Wisconsin and Upper Michigan Section of the Society of American Foresters at Isle Royale, September 7, 1940.

Up to some 25 or 30 years ago it seems to have been inconceivable to most of our people that there could be too many farms or too many farmers, but after a period of 20 or more years of farm-crop over-production the uncomfortable fact that we have too many has been generally accepted. As it seems to me, forestry as a major land use did not become really well established until the outer limits of successful agriculture had been fairly well defined. Now I'm wondering whether that situation may not be repeating so that game management will not take hold strongly until the outer limits of "successful forestry" have been fairly well defined—as I take it they have not yet been.

As a matter of fact, I find myself wondering whether the concepts and ambitions of foresters have not been over-expanded of late in much the same manner that agriculture became over-expanded some 20 years ago. Also I'm wondering whether game management and other "recreational industries" may not, even now, be expanding so as to absorb fields which are being relinquished by orthodox forestry—that is in the forms which I have heard referred to as "saw-log forestry."

Of late years foresters have quite evidently been doing more and more thinking about other than log-tree uses for "forest lands"—such as recreation, water shed protection, etc. This has at least resulted in the coining of such terms as "multi-purpose forestry," "multiple land use," and the like, but just what these terms really mean is far from clear. Most of our larger schools of forestry have only recently introduced courses in "general conservation" and "wildlife management." Within the decade the U. S. Forest Service has added to its staff special personnel whose responsibility is to see that wildlife receives due consideration in the forest plans.

The head of one school of forestry has been saying that the proper field of forestry is "taking care of the wild lands," but since it has



always been accepted that the forester's field also includes farm woodlots, then perhaps it would be more nearly correct to phrase it: "taking care of all the lands not in agricultural production." But that would not be entirely correct because unfenced wild grazing lands may also be included, which reminds me of the forester who is said to have defined a prairie as a "treeless forest."

Just what, then, is multi-purpose forestry as compared to other sorts of forestry? I can't seem to find any real definition of the term, and the foresters I have asked about it seem to be as confused and foggy about it as I am.

When I seem to be making some fairly satisfactory headway toward a solution of these questions, something comes along to demonstrate that I'm still badly confused. For example, what is the major significance of the editorial in the JOURNAL OF FORESTRY for July? In this the editor is discussing a question raised in an article in an earlier issue of the JOURNAL: "Is it an economic sin to leave idle, lands not now needed for timber production?"

Just what the editor would consider to be "idle" lands isn't very clear, but it appears that on areas where timber production is a minor consideration or not a consideration at all, and where game management is a major consideration, such areas, from a forester's point of view, would be "idle." They are evidently to be considered "idle" because they might be used for timber production but aren't being so used. If that is the way of it, then from a farmer's point of view, lands not being used for specific agriculture might be considered as "idle" even though they are being worked intensively for timber crops, or for recreation.

But perhaps the editor really means "unworked for anything" or "just left alone." But can public lands be left entirely alone in a state like Michigan? In theory, perhaps, but some manner and degree of supervision will certainly be required, plus payments in lieu of taxes and the like. Fires, erosion, and predators may "have to be" controlled for the protection of adjacent lands which are being managed for the production of timber, for agriculture, or for recreational uses. Somewhere someone will be keeping books against all the lands, and even though given lands are indeed idle, public expenditures will be accumulating against them and such expenditures must be accounted for in any competent system of bookkeeping. Even

though we "gave it back to the Indians," such lands would be costing us something and so I take it that this editorial is really just suggesting that land managers must be prepared to justify their particular administration of given public lands.

In the Is-It-A-Sin? editorial the editor of the JOURNAL is saying that we need accountings of our public land affairs such as we have not been getting; and he makes the specific comment that "old style red and black ink accountings for 15 or 20 of our state and national forests would be illuminating in helping to answer one of the most fundamental of all land use questions: Is it an economic sin to leave idle, lands not now needed for timber production?"

This leads me to an item which I find more and more puzzling. Why should the editor of the forester's professional journal so mildly suggest what I have been hearing foresters saying to each other more and more openly and often: that they do not "expect" that the average state or national forest will "ever" become self-supporting from the sale of timber, grazing rights, etc.?

As I understand them, this prospect does not seem to bother the foresters much. They evidently take the position that even though the lands under their administration never prove to be a good financial investment, or never become even self-supporting, and must always "operate in the red" as far as the "tangibles" are concerned, the "associated intangibles" are due to prove so "satisfactory" that the entire multi-purpose operation will be "worth-while in the long run."

I assume that the editor understands all that as I quite certainly don't, but I judge I "get him" quite accurately when he remarks: "This situation may be a happy one for the foresters while it lasts, but what will be done or can be done when the public insists that we audit our books? Will the public then be satisfied with intangible results alone?"

Am I correct in understanding the editor to be thinking that there is a distinct possibility that state legislatures and committees in Congress may soon be asking questions as to the precise justifications for continued appropriations of public funds to support "multi-purpose" forestry operations which are not and may never become self-supporting? Am I correct in assuming that if and when that happens, the foresters will expect to put it up to the game managers



to justify their game-servicing operations with reasonably precise and dependable accounting of "returns" vs. "costs?" Under such prospects will a motion be in order for foresters and game managers to get together to do some joint and mutual thinking and working in order to be getting properly prepared when, if, and as it is up to either or both contingents to justify their expenditures of public funds?

If or when the foresters come to the game men for help in justifying pro-game service operations, they will, I am sure, find a considerable amount of readily checkable material—and in both the tangible and the intangible phases.

For examples to illustrate this allegation, I'll refer only to work being done by the Michigan Department of Conservation, though much is available elsewhere. During the past few years the department has established experiment stations throughout the state to study the "yields" of game and fish per acre of range or unit area of water, such as a mile of trout stream or acre of lake; and to classify and "rate" the "productive capacity" of the major "types" of each. Of course, these studies are not the only work carried on at these stations, which are strategically located to cover the different types of game range in the state. Supplementing the information gathered by the fish and game experiment stations are the creel-census reports and hunters report cards, both of which have been in use for a number of years. For the past three years hunters have been required by law to report their kill of game after the close of each season. These reports have proven extremely useful to game managers in measuring actual game "take."

Our fish division also has its fisheries research branch, which works the state as a whole but with intensive checks on special areas to determine the species, number, and size of fish taken and the ratio of "keepers" per fisherman-hour in each major district, lake, river-system, etc.

For the past five years our game division has made annual surveys of the big game killed on Drummond Island. This island is located off the east end of the Upper Peninsula and is separated from the mainland by the St. Marys River, which is about a mile wide at this point and crossed by a single ferry. The area of the island is approximately 130 square miles. The cover consists principally of upland hardwoods of the beech-maple association, and swamp conifers of the cedar-spruce-balsam type. The average an-

nual yield of this area during the past five years has been 389 male deer (under the Michigan law, only male deer with antlers extending not less than three inches above the skull may be lawfully killed). To harvest this crop of deer, an average of 963 hunters have hunted the island each fall. Questionnaires designed to measure the deer hunting "industry" indicate that each of these hunters spent over \$30 for his trip to Drummond Island. On that basis, the island hunters have spent a total of over \$150,000 during the past five years, a large percentage of which directly benefited the permanent residents of the island. These figures seem to be very significant, and to more or less dictate "land use policy" for the island, especially since it is not suitable for agriculture; and lumbering operations on the island, in spite of its easy water transportation, seem to have been consistently unprofitable.

It was areas such as this that Lovejoy evidently had in mind when he referred to areas which are "submarginal for timber as well as for agriculture." ("Concepts and Contours," JOURNAL OF FORESTRY, May 1933).

Similar surveys of many other areas would, I feel sure, give similar results, and such as to justify maintaining sizable areas where game management, fishing, and "resorting" will be the major considerations of the management, and where "timber production" will be incidental only (or perhaps to be considered as a species of actual liability).

One of my major points of confusion comes in about here. For several years before I joined the game division staff, the conservation department had been operating the land economic survey, which was building up a detailed inventory covering the soils, cover, history, current economic status, etc., of the areas covered. Nearly half of all the wild land counties of the state were covered by this survey and some of them were photographed from the air and mosaics had been set up by G.L.O. townships long before the recent A.A.A. air-mapping began.

So from my first contacts with game management affairs, I have been assuming (or should I say understanding?) that there is a very definite and consistent correlation between soil entities, their cover associations, local climate, and the resulting "productive capacities" of our lands. This, evidently, holds true whether the productive capacity of given lands is being mea-



sured in terms of farm crops, forest products, or wildlife crops.

Any of the recent U.S.B.S. soil survey bulletins, for instance, includes a tabulation to report on the normal range of productivity of each of the individual soil formations commonly used for agriculture and as mapped for occurrence and distribution. This table lists the normal production of each soil entity as in bushels per acre of potatoes or apples, tons per acre of given sorts of hay, animal-unit carrying capacity of pastures, etc.

My point is that the normal ranges of productivity for the agricultural soils have been checked and have been recorded; but of the soil formations not suitable for agriculture the bulletin will probably say only that they are "best suited to forestry and associated enterprises." The soil surveyors stop there because, as I gather, they have no facilities for getting, and have not been provided with the data necessary to complete such tables so as to report on the non-agricultural land uses. Why is that?

Meanwhile, of course, everyone knows that the best "cork" pine in Michigan grew on the clay and loam soils in stands mixed with hardwood species. The best maple-hemlock mixtures were found in a few Lower Peninsula counties bordering on Lake Michigan. The growing season in the Upper Peninsula is so short that few of its great hardwood stands were as good as the average stands of the Lower Peninsula. And everybody knows that some of the peat soils grow good cedar easily, while others produce only scrub spruce or no trees at all.

In their elaborate stand and growth tables the foresters have been recognizing and recording something of these forest-land "productive capacity" facts and factors, but these seem to be broken down to "site qualities" which are not in any way, so far as I am able to learn, correlated with the soil entities as recognized and mapped by the soil taxonomists. As a matter of fact, except for a few who were trained in Michigan schools, and especially those that worked on the land economic survey, I have seldom met a forester who seemed to know or care anything about "soils" in their modern aspects. I have been told that the national forests have made no attempt to map their soils as such, and I understand that they are not staffed with personnel competent to do it and that professional soil-surveyors consider the "land classifications" on which Lake States national forest expansions

have been made to be so crude as to be almost or quite funny.

When Michigan first started its modern game-refuge program, there were worked up and published detailed specifications to identify and define the combinations of lands, cover, etc., which would be eligible for consideration as refuge units and their adjacent public hunting grounds.

We have learned a lot about refuge affairs since those days, but my point is that, from the first of our modern game management experiments, we have been operating on the basic assumption that some combinations of soils, cover, etc., are much more productive of game than are others and that we must try to concentrate our intensive efforts in the most productive areas. In contrast to this game-management practice I seem to note that in very consistent manner the foresters have concentrated their most intensive efforts in the least productive areas. A large percentage of the pine plantings in Michigan and on both national and state forests have been made on poor sand plains, and in a good many cases on lands so poor that they never did produce good stands of high grade timber.

I can think of many cases where pine plantings have been made in large open areas where it seemed to me the plantings had little chance for success, yet the foresters put their heavy equipment through the areas, plowing deep, wide furrows that probably destroyed at least fifty percent of the ground cover.

Besides being on areas that apparently never produced even a fair crop of merchantable timber, such plowings and plantings are also destroying large acreages of good prairie chicken and sharp-tailed grouse range. If the plantings survive, these game species will soon be pinched out; and if the plantings fail, the area has been seriously damaged or spoiled from a hunting standpoint because the wide, deep furrows make walking very difficult, and the deep furrows also bother the hunting dogs so that hunters actually abandon such areas rather than watch their dogs run up and down the furrows. Since the prairie chicken and sharp-tailed grouse ranges are being all too rapidly shrunk by the closing in of the openings via volunteer second-growth, I wonder if the foresters are acting wisely in hastening this shrinking process. I'd like to see this situation analyzed in its technology and economics to see whether the foresters are justified in their long-standing policy of planting



and then more planting, regardless of the other interests affected.

Various other phases of economics also puzzle me in the foresters' programs and projects. I wonder, for example, whether they are "sound" when they reach fifty or a hundred years into the future and come up with vague estimates to indicate how much their plantings will produce and how much it will be worth to the local communities to be thus "rehabilitated." I also wonder whether these communities will be able to exist in their present submarginal status during the next fifty years or so, while they are waiting for the forests to come into "sustained-yield production."

Here may be a good place for me to deal with a situation which confuses me hopelessly. It is evidently the intent of the official foresters to "practice forestry" on all of the wild stump and brush lands—whether they are now in forests, are "cut-over lands," or are just "potential" forest lands. The entire nation is evidently included—along with the regulation of lumbering in forests and woodlots which are still in private ownership. (As set up for instance in the recent "Lake States Planning Report" and in the U. S. Forest Service "Recommendations to Congress"—revised as of June 1940.) I gather from what I have heard and read that these reports and recommendations represent the intents of only a certain contingent of foresters; and that there are other contingents of foresters not in good agreement with the currently official policies and proposals.

That there is another contingent or point of view is evident in the forester's own literature, and I cite again the July JOURNAL's Is-It-a-Sin? editorial, and "Forest Land Use," by G. A. Pearson in the JOURNAL OF FORESTRY for last March. Pearson makes the flat allegation that we have in the United States some four hundred million acres of forest land of greatly varying degrees of current status and of inherent productivity. He follows that with another flat allegation to the effect that if selected properly for location, high natural productive capacity, current silvicultural conditions, etc., and if then "worked intensively," 25 percent of the "available forest lands" would produce an ample supply of high-grade forest products for the nation, plus a generous exportable surplus, and do it at lower costs than will be involved under the practice of "multi-purpose" forestry. He is evidently not in sympathy with the multi-purpose for-

mula and refers to it as: "salvage from a far-flung wilderness of what nature chooses to offer."

So now, I ask you: What is a young game manager to make of such divergencies of allegation and of basic forest land-use policy appearing in the forester's own literature? And with the editor of the forester's JOURNAL asking his Is-It-a-Sin? question at approximately the same time the "Recommendations of the U. S. Forest Service to Congress" comes out?

Pearson is evidently a Forest Service man located in the Southwest and must presumably be at least somewhat respectful of the policies announced as official, but he evidently isn't alone in his inclination to question or challenge the policies and practices of the agencies now in control of "public forestry." In the *School News* for July 1 as sent to its graduates from one of the oldest schools of forestry in the Northeast, I find this, evidently in reference to those recent Forest Service Recommendations to Congress and coming from the dean of the forestry school in another old northeastern university. His statement to the old grads is this: "It is, of course, notorious that the U. S. Forest Service has been so imbued with new dealism as to alienate the forest industries. Every time one of these chimerical schemes with astronomical appropriations of tax money is launched, it estranges the very men on whom the successful practice of private forestry depends."

A young man in state game management wouldn't, I hope, be expected to know much about foresters' professional quarrels, but perhaps he may comment that now and then of late he has been getting strong whiffs from styles of "forestry" which seem to be quite sour.

As a game man I am very little concerned with "forest policies" as they relate to the production of essential or other timber supplies and the best methods of insuring permanently generous supplies, but I am very much concerned with the underlying land-use policies which are to be involved.

By now, I presume it is quite generally understood and taken for granted by everybody concerned, that stands of timber trees such as are in condition to produce the most high quality timber per acre per year are automatically low in their game carrying-capacity. In general, therefore, the practice of "intensive forestry" on any sizable area is due to eliminate game management as a major consideration on that area (because "good stands" of timber must have closed



crowns, clean stems, little ground vegetation, etc.).

In the Lake States this happens whether or not any manner of "forestry" is being "practiced"; and it has been happening in Michigan for the past 25 years or so, and on a fast increasing scale and rate. It is a direct natural sequence of sustained and increasingly effective forest fire-control. In the relative absence of fire several million acres of volunteer second growth has now "come back," and at least some hundreds of thousands of acres of it have now "closed in so tight" that much recently good hunting territory has not been worth hunting in during the past few years.

How serious this is, or soon may be, in connection with our game supplies and their availability to hunters, we are not yet sure, but I judge that it is safe to assume that specific recognition of the fact itself will soon become general in Michigan, and probably in the balance of the Lake States not long after. There is a curiously indirect confirmation of this fact and prospect under the heading of "Research" on page 32 of the Forester's Report for 1938. It reads: "Preliminary estimates indicate some 50 percent more timber volume in Michigan than previously supposed . . . most of it scattered, of minor species and economically unavailable . . . but with growth rates several times larger than previous estimates."

Finally, I arrive at the most perplexing problem of all this series: As a game management technologist, on what specific lands and under what specific conditions will I be encouraged or allowed to do my stuff?

If "multiple-purpose forestry" is to be in general effect, I have no idea of where or how I shall get much of a chance to do anything of consequence. Perhaps the only wildlife range management to be worked into such a program would be the planting of a few berry bushes or the like along the swales or in odd areas which for one reason or another, the foresters have not yet gotten around to or aren't interested in. In that case I shall evidently be in about

the same status as the forester among the farm-service agencies; i.e., shall get a chance at only the odds and ends nobody else wants to bother with.

But under official policies such as set up in the Pearson formula or the like, when the foresters have picked out the areas on which they want to practice "intensive forestry" and when the long-run timber requirements of the region have been thus taken care of, I shall then evidently be free to sort out the best combinations for game management on the remaining 75 percent of the "total available" wild lands, and I shall be in shape to practice game management with little or no regard for tree-associations except as they may appear as assets or liabilities in relation to wildlife habitats.

Under such circumstances where wild second growth has become too thick, or where other cover is for any reason a liability, and the area is otherwise a good game management "chance," I will probably recommend that fire be "used as a tool" to open or clear such areas; and in this I shall expect to have the full and efficient cooperation of the department's fire division. In such cases it will no doubt turn out its equipment and personnel and will go to work as calmly as a farmer would set his plows into a weedy old pasture that needed renovating.

The designation of the treat-with-fire areas, the timing of the fires, manner of burning and control, degree of burn, and the prior or subsequent treatment of the areas, such as the sowing of forage seeds, replacement of the currently dominant tree species, saving of nut or mast-producing species, etc., will be details to be worked out in advance, and to become parts of an increasingly elaborate and dependable game cover and food management technology. I have no doubt that such operations will soon be properly scaled to the tangible and to the valid intangible results, and in such ways that our sportsmen will be assured of getting good value for the money so spent. I anticipate that the results of such game management will be readily checkable, will be well tied to the ground, and will not be obtainable via gazing into crystal balls.