A Glimpse of Michigan and Her National Forest

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Very interesting it would be to mention the word Michigan to an audience of people more or less familiar with the State and then have flashed on a screen in rapid succession the pictures of what would appear in the minds of each individual. Automobiles, mostly Fords, of course, would no doubt lead the list. Following in their order would then come the Great Lakes, large cities and industries, agriculture, educational institutions, fruit farms, iron and copper mines, good roads, miles of shore line, summer resorts, fish and game and so on down the list of things that all go to display and define a most wonderful State. A few, no doubt, would think of vanishing forests, thousands of idle acres, forest fires and the work being done by the Government and State along Forestry lines, but how much in the minority would be these minds dwelling entirely on futures. It is not unreasonable, therefore, that Forestry is moving slowly in Michigan, nor can it be expected to move faster until forest fires, the scarcity of lumber products, and idle acres become at least as important as Fords in the minds of the majority.

By drawing a line east and west across the State and through the city of Saginaw an almost exact division would be made of farming and timber lines. The area south of this line, of course, would be the highly developed agricultural center of Michigan, while to the north would be the vast area that at one time was the pride of the State and made Michigan the banner State of the Union from a timber producing standpoint. This northern half of Michigan was once the famous pine region and furnished the United States and part of Europe with the best white and Norway pine that has ever been produced. During the early seventies this vast empire of timber was considered by lumbermen and economic experts to be inexhaustible, but with startling suddenness the situation was entirely changed in a comparatively few years. Between 1870 and the present time the forests of pine have become exhausted and there remains only a fringe here and there on soils adapted for the growing, limited stands of virgin hardwood. The virgin stands of pine that are left in the state are not worth the mentioning.
The State of Michigan comprises approximately 36 million acres. Of this amount 11 million acres are only fit for the growing of timber. Land economists, agricultural experts and engineers agree that not less than 7 million of these acres are entirely incapable of producing anything but timber. At least 6 million acres of these 7 million must be planted to trees if they ever grow anything of value. To make the example more emphatic, only 10 percent of the area lying north of Saginaw is being farmed at this time. This north section of Michigan which once produced the best and most lucrative crop the nation has ever seen, is now one that is proving an embarrassing and expensive problem to the state. Its timber removed, it was found that the soil was not capable of being used for agricultural purposes. Far different is Michigan from the state of Ohio, which, after its timber was removed, was immediately converted into a very productive agricultural state. Its soil was fit for such purposes, being in most cases a rich black loam underlaid by a clay sub-soil. In Michigan the timbered lands were sand of lake wash and glacial formation that is incapable of holding fertility, contained no clay sub-soil and is susceptible to leaching and dries out very rapidly. Of course, after the timber disappeared in Michigan, real estate boomers followed the logging operators and great areas were immediately settled by farmers from Illinois, Ohio, Iowa and the southern parts of Michigan and Minnesota. The land itself, because of its lack of contours, the ease in which it could be cleared and worked and the very attractive prices at which the land could be purchased, all worked in well with the realtor's game. One can travel now over the northern half of Michigan and still see the efforts put forth by these early pioneers. In all it is a pitiful sight. For several years after locating on these pine barrens the farmers made every possible effort to make the lands pay. Homes were built, orchards were planted, clearings were made, schools and churches were erected and roads laid out. Today there remains as monuments to these well meaning Americans a few of the tumble down buildings, empty school houses, dilapidated fences and deeply rutted old roads and a few worn out fields that nature is attempting to regain by scattering seeds of jack pine here and there which have taken root and thus are trying to obliterate the scars and efforts made by the early pioneers.

This sand plains region, as it is aptly called, extends from Saginaw north to Lake Superior, east and west in the lower peninsula to the shores of Lakes Michigan and Huron and east and west in the upper peninsula from a point fifteen
miles west of Sault St. Marie to the boundary line between Michigan and Wisconsin. With the disappearing of the forest the lands immediately grew a very luxuriant crop of a poor quality of sedge, fire weeds, blueberries, turkey foot and kinnikinic. This growth for a time encouraged adventurous stock men to consider the area for grazing purposes, but it was found that while this forage furnished a fair spring and fall pasturage it dried up and died with the coming of the mid-summer drouths. The stock would not remain on the area and naturally the grazing problem has never been developed to any great extent in northern Michigan.

This annual growth created a fire situation that tended to lead the former timber lands to rapid destruction. Fires occurred very readily and spread very rapidly. It has been stated that this portion of Michigan burns over completely once every ten years. This statement may not be true, but we do know that the area burned each year is appalling. I consider the state of Michigan one of the highest in fire hazard of any state in the Union. These fires have repeatedly eaten up and destroyed natural reproduction, seed bearing trees and soil quality until now there are thousands of acres that spread away in every direction without any timber growth to indicate that at one time the region was the pride of Michigan, about which fiction writers wove their excellent stories and about which old pioneers still talk of three log timber. Further, everybody is talking of the sad state of affairs that now exist, of millions of idle acres, of destructive fires, of dwindling population, diminishing taxes, poor schools or none at all, bankrupt counties, miserable roads, starving ministers and the feeble attempts by government and state to correct the situation.

Early in the history of the state the homestead laws and timber and stone acts allowed the best soils and best timber to be turned over from government to private ownership in a very short time. There were sections of the state, however, even at that time that contained little of value. The lands included within the Michigan National Forest were among the last mentioned. Year after year government owned land became less and private owners in the state became more numerous. The land was taken up with the exception of comparatively small areas from which the timber disappeared either by fire or timber operations and the yearly destruction by fire depleted the soil and any timber that may have been left to such an extent as to make the lands undesirable for any purpose whatever in the minds of the home seekers that were rapidly traveling to Michigan.
For years after the development of the state, these government lands received no attention whatever. Year after year the timber disappeared. Yearly fires over-ran the area and finally during 1908 a few farsighted citizens of the state saw that unless something was done immediately a large part of Michigan would become a barren waste and probably a sandy desert. This handful of citizens succeeded in having a large portion of the remaining government land in the state set aside as the Michigan National Forest and since 1909 this forest has been under administration by the U. S. Forest Service. By looking at a map of the Forest, the observer would be struck by the very irregular boundaries that are pushed out here and pulled in there and in many places resemble long broken stairways, and within these boundaries the forest is dotted and badly cut up by private holdings. In many respects it might be compared to a hod full of mortar that has been dropped from a high building by a careless hod carrier, the largest portions striking in Oscoda County and the smaller dabs landing in Chippewa County in the upper peninsula and Iosco County near East Tawas, with smaller drops scattered about the outer boundaries, making in all a forest unit that presents anything but one that can be handled to the best advantage from an administrative and purely business standpoint. Remember that these lands now owned by the government within the forest were abused for years. No one wanted them. In fact, the Federal Government rather reluctantly took them over as a National Forest. To the casual observer that travels over the region in which the Forest is located, there is nothing to tell why the boundaries of the forest are so located. For miles in every direction outside the forest is the same type of land and the problem of fire protection and administration would be greatly facilitated if the Forest were one unit, its boundary straightened and the private holdings inside owned by the Federal Government. Since 1909 the Government has attempted to keep out fires and since 1911 has carried on from year to year planting operations that because of limited appropriations seem small and insignificant when compared to the amount of land within the Forest and the State that must be planted to trees. The Forest in its present stage represents anything but what the name implies. Viewed from an airplane, it would resemble a large Axminster rug very much moth eaten and worn. Large irregular tan colored blotches would appear hit and miss over the surface with various shades of green clumped here and there resembling piles of nap that had been eaten by the moths and rolled up in a hap-
hazard fashion. These are the natural reproduction of jack pine and scrub oak, both of little value for commercial purposes other than for fuel. The plantations that have been set by the government would resemble row after row of green ribbons stretched across mile lengths of the grassy plains. Barren parallel strips along roadways and around mile square sections are the firelines that protect the plantations. Irregular strips of green are the courses of small streams that flow through the region. There is no merchantable timber to speak of and the value of the natural growth now on the ground is mainly to hurry back forest conditions, build soil and prevent further leaching of the poor soil beneath. This natural growth is also a great factor in the fire problem since it eventually eliminates the very luxuriant growth of grass and other vegetation that appears where the sun has an opportunity to reach the soil.

The problem, therefore, on the Michigan Forest is first fire protection and this phase of the work has reached a high state of development. Early in the spring, before the fire season opens, which it usually does during the month of March, lookout men are called together and a three day training course is put into effect. These men are instructed from the greatest to the smallest details covering everything pertaining to their job, the idea being to make them an important factor in our protection work and have them realize their position as the “eyes” of the service. The lookout job on the Michigan Forest is by no means an easy one. It demands long hours and day after day uninterrupted by Sundays or holidays, unless weather conditions will permit. Discipline must be applied in every case. No lookout man leaves his station without permission from the ranger in charge of the district on which he is working. Lunch and water must be taken to the observatory of the tower in the morning and he must be on duty during every hour of the day when fires are likely to occur. He must know the fire plan thoroughly, must know his map, must be a good judge of distance and must have keen judgment and initiative and use them effectively. When the lookout discovers a fire he reports it immediately to the ranger in charge. The method of location is by triangulation, therefore, two towers must work together in obtaining the proper location. Correct readings are essential. The readings obtained by the two towers are given to the ranger by the lookout chosen for that purpose, who further reports color of smoke, direction of the wind, progress the fire is making, etc. The ranger may instruct this observer as to the number of men he desires and what action he should take toward calling men, but invariably he
leaves this to the lookout observer who has been instructed along these lines as to whom to call when a fire occurs in a certain part of the forest. Key men have proven a very big help in the fire prevention and suppression work within and near the forest. These men are chosen from the farmers living about the forest and are selected because of their standing in the community, their interest in the work of the Service and their ability to handle men and the fire problem. The lookout observer calls the key man nearest the fire and tells him to bring five or ten men, whatever the occasion demands. In the garage is a large motor truck ready to leave at a moment’s notice. This truck is equipped with water, fire fighting equipment for 15 men, a walking plow, is filled with gas and in readiness to go at all times. The ranger steps on the starter and is off to the fire. Usually some men are working on firelines or roads nearby. He goes to them, picks them up and continues on to the fire. Upon arriving at the fire he sizes the situation up at a glance. The plow is pulled to the back end of the truck, fastened to it by a chain and a furrow is plowed completely around the fire. Men follow the plow and backfire by the use of kerosene torches and within a very short time the fire is under control. The main points in handling the fire situation on the forest is snappy action on the part of every one included in the fire organization. Very seldom is it over five minutes from the time a fire is reported until someone is on his way with fire equipment to suppress the fire. During the past few years this has meant a great saving in acres burned. The forest is visited by thousands of tourists each year and naturally with this great number of people the hazard is very high. On the other hand, considering the great number of visitors, the number of fires resulting from their carelessness is relatively small.

To offset the destruction of repeated fires, poor soil and absence of timber on the lands within the forest, as stated above, the government started planting operations in 1911. Every year since that time some planting has been done. The annual acreage reforested each year has been increased until during the year 1925, 3,300 acres were planted to Norway pine. This is the largest acreage ever planted at one time on any National Forest. The average cost for the past five year period for our planting work has been $3.43 an acre, which is the lowest planting cost established in the Forest Service. There have been planted to date on the forest approximately 12,000 acres, most of which is Norway pine. Experiments have been carried on with a few exotic species and some white pine, but these show very emphatic-
ally that Norway pine, the tree that originally grew on these sandy lands, is the tree best adapted to the soil conditions. During the fourteen years of planting operations the technique of the planting job has been gradually increased until at this time the survival of trees planted average between 80 and 90 percent. Immediately after July 1 of each year teams are set to work plowing furrows 2 feet apart over the areas that are to be planted. The work is done by a common sulky plow equipped with a rolling coulter and the outer end of the plow point turned up so as to form a cutting edge and thus a ribbon of sod is removed and thrown free of the furrow. Each team plows an average of ten acres per day or as figured in the planting work 10 miles per day. From five to ten teams are kept busy until October 1. In some places where there is considerable down timber, swampers are employed to go ahead of the teams and remove the down material to enable the teams to continue their furrows. The use of furrows has meant successful planting operations on the Michigan Forest. As mentioned previously, a very dense sod is formed by sedge, kinnikinic, turkey foot, blueberries, etc. Naturally it would be poor business to plant trees under such circumstances without removing this competition. The furrow does all of this and furnishes ideal growing conditions for the young trees after planting. It also means that the furrow will hold snow and thus the trees obtain more moisture. The furrow gradually fills with leaves and other vegetation and thus better protection is obtained from severe winter weather. The furrows also mean that when planting operations begin during the last week of September that each man will be able to plant more efficiently, does not need to locate himself since he merely starts at one end of the furrow and follows it, planting trees 8 feet apart until he reaches the end of his furrow. These furrows mean that each man, after he has been on the job for a short time, averages from 2,500 to 3,000 trees planted per day. A small planting bar, constructed with a blade of 4x1\(\frac{1}{4}\)-in. steel 14 inches long, equipped with a 3/4 inch galvanized pipe handle 3 feet long is used. It is possible to handle this bar very easily with one hand, the planter carrying a small box of trees in the other hand and thus each man carries his own planting bar, his own trees and does his own planting.

Practically all of the planting work on the Michigan Forest is done during the fall months. It has been found that during this time of the year the fire situation is better than at any time during the spring or summer months. The weather is usually cool and more moisture is apt to occur.
The ground also is cold. The small trees as a rule have gone into a dormant condition and thus stand more abuse than would be the case if they were planted in the spring. Also men work better and are more plentiful. After the trees are put in the ground in the fall the action of fall rains, thawing and freezing and spring rains, all tend to set the tree in a natural condition and it is ready to start in the spring when all other growth begins.

The Forest Service is now maintaining a most up-to-date forest nursery at East Tawas and this nursery furnishes all the trees planted on the forest. Two year seedlings are used entirely for the planting work. It has been proven by experiments that the comparison of losses between transplant stock and seedling stock is so very small that it cannot be considered therefore no transplant stock of any kind is used for reforestation work on the forest. The nursery is one of the most modern in the Forest Service today. Approximately four million trees are raised annually with little difficulty. The seed is obtained from Northern Minnesota and shipped here, since not enough Norway pine seed trees are available in Michigan to furnish the seed at a reasonable cost. As planting operations grow on the forest, of course, it will be necessary to carry on spring planting work, but until the program is enlarged considerably over what it is today the plans will be to do all planting during the fall months.

One very high priority on the forest is education. In a state like that of Michigan, where there are so many idle acres and such a vital need for a sound forestry program, every forester must be a propagandist. The personnel on the forest has been for the past few years doing a very strenuous work, intelligently informing the public as to what the government is doing in the state, the need for a more adequate fire prevention policy and a planting program. It has gone far toward winning friends for the forestry movement and it is very surprising to note the keen interest that is being displayed by the people of Michigan today and, providing this interest is maintained, it will only be a short time until the support necessary to bring larger appropriations and a larger forestry program for the state, will be realized.

Talks by the personnel, illustrated and otherwise, are in much demand and each officer is expected to do his share of this work. The personnel must be able to pass out accurate information, they must have tact and personality, which goes a long way in spreading the doctrine of fire prevention. To care for the many visitors that come to the forest each
year, five free public camp grounds are equipped and maintained. It is found that the visitors appreciate these improvements placed by the Service and it is really an inspiration to see the great number of people that use these grounds every year. The improvements on the forest are as good or probably better than on most National Forests and the ranger stations are as modern as funds will permit and all are comfortable and homelike.

A large acquisition program is now under way, which, after it is set in motion, will increase the present units of the forest and probably mean the establishing of more units elsewhere in the denuded areas of the State.

The work that is being done by the State Conservation Department deserves considerable praise. This organization has a far bigger problem than is realized by the average person. Practically 13 million acres are in the fire zone of the state. This area is intermingled largely by private lands. The problem is one of education and larger appropriations with which to handle the fire situation. The Conservation Department is doing very well and with the strides they have made during the past few years there is no doubt but what she ranks well toward the top in everything that pertains to conservation. The state has adopted an annual planting program of 10,000 acres per year. This, with the annual program of 3,000 acres carried on by the Federal Forest Service, places Michigan well ahead of any state doing such work. The Conservation Department is also confronted with the perplexing problem of the ever growing tourist travel that is annually moving through northern Michigan. Naturally this means increased fire hazard. It also means continuous and well directed warnings and education every year throughout the entire summer. But it might be said here that it will be through this source of revenue that the fire situation will eventually be eliminated or held to the minimum for it is now found that the idle acres of northern Michigan have a revenue producing value in the tourists which will increase, providing fires are kept out.

Michigan is rich in a great number of things and ranks high in industries and natural resources and with the elimination of forest fires and the constructive assistance of her population she will again regain her lost position as a timber producing state and save a part or all of the $15,000,000 that she is now paying out every year in freight rates on Oregon fir and pine from the Gulf States.