STATE FORESTRY IN OREGON

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STATE FORESTRY IN OREGON

INTRODUCTION

The close of the year 1935 marked the twenty-fifth anniversary of state forestry in Oregon under the administration of a board established by the provisions of the forest code of 1911. In that quarter of a century much has been accomplished but there is still a vast amount of work ahead before Oregon's forests can be placed on a permanent basis. The necessity of forest perpetuation in Oregon has never been questioned, but opinions have and do differ as to how those ends may be accomplished. It requires a complete knowledge of both the past and the present as well as an unusual vision regarding future trends and requirements. It is a task that cannot be accomplished by a single individual or group of individuals, but requires the united efforts of all who are concerned with the intelligent use of forest lands.

With only a small percentage of its timber cut and a residual stand amounting to one-fourth of the remaining virgin timber in the United States, Oregon has a wonderful opportunity for the development and establishment of a permanent policy that will place the timber-producing lands of the state on a sustained yield basis, thereby preventing any serious economic disturbance in the transition from the old forests to the new as has been
suffered by many of the states where the policy has been to "cut out and get out."

State and federal forest problems are so closely interrelated that there can be no definite dividing line between the two. In order to get a clear picture of state forestry in Oregon it is necessary to review the matter from its earliest inception, including activities and legislation, both state and federal, that have had their effect on forestry development. The underlying objective of all forestry legislation is to develop a policy that will make permanent the social and economic forest life of the state. Oregon, for many years, has been held up as an example of what can be accomplished through progressive legislation, cooperative effort and sound forest policy.
EARLY FORESTRY ACTIVITIES

The settlement of any new country has always been marked by forest destruction through land clearing, waste in utilization and lack of regard for fire damage. The Oregon country has been no exception. There was the old contention of an inexhaustible supply of timber. The scars of the white man's carelessness with fire are still evident. There are the Nestucca, Yaquina and Coos Bay burns, covering over a million acres of forest land but representing only a small part of the virgin timber land that has been burned over through carelessness with fire. With the passing of time has also occurred the wasteful utilization of timber without thought or action towards renewal.

In spite of carelessness the early settlers realized the importance of timber. In taking up the original donation land claims there was always an effort to make a proper division between the agricultural or grazing lands and the timber land. Timber was as essential in their lives as to the present generations. It furnished logs for houses, materials for their crude furniture, posts, poles and fuel. Game was also an important source of food supply. Evidence of the realizations of the possible loss from fires is contained in a law passed by the legislature seventy-two years ago making it unlawful to set fire to "prairie or other lands". This law is still on the statute books of the state. (1)

Naturally there was little accomplished for many years, forestry itself being a more or less nebulous idea in the minds of

(1) Sec. 14-363 Oregon Code 1930.
the settlers, with interest to a small extent, centered only on forest lands in private ownership. Practically no concern was felt for the thousands of acres of land in public ownership at that time. The first evidence of public interest, which had its influence on state forestry, came sixty years ago as a result of the investigations and recommendations of Dr. Franklin B. Hough, followed years later by the creation of the first national forests.

First Board Created. Prior to 1907 there was some slight interest in state forestry as was indicated in the state game laws through the expressed responsibility of the state game and forest warden to enforce the game and forest laws. Since the forest laws were practically non-existent, and the interests of the wardens were principally in game matters, very little was accomplished along forestry lines. However, sentiment towards the creation of a state department was gradually taking form and in 1907, a state Board of Forestry was created, but the activities of the department were very limited due to the fact that the biennial appropriation amounted to only $500. (1) The administrative work was entirely of a voluntary nature, the funds being expended for some few supplies and the payment of a part time stenographer. Work consisted of the issuance of fire wardens' commissions, press releases and the publication of a biennial report. The work did serve to develop further public support for the creation of a well organized forestry department, supported by liberal appropriation.

Private Efforts. During the period between 1907 and 1911, there came the first action on the part of private individuals to undertake forest protection. Several owners of large tracts of forest land in Klamath, Coos and Lane counties, organized definite patrols. (1) Out of these individual efforts grew the first forest protective associations. Adjoining and intermingling owners consolidated for the purpose of mutual protection, elected a board of directors to conduct the affairs of the organization, appointed a secretary, head warden and employed patrolmen. Assessments were fixed on a per acre basis to defray the costs of the organization. The present associations are conducted on essentially the same basis as those organized thirty years ago.

1911 CODE ENACTED

There were several factors which led to the passage of the 1911 code. These included the influence of the United States Forest Service, insistence of private timber owners for state legislation and aid, and the tremendous loss suffered from fire during the season of 1910. The United States Forest Service had been established for some years but had just recently been transferred from the Department of the Interior to the Department of Agriculture. Forest protection by the federal department had been started in Oregon and these officials, realizing the importance and necessity of making forest protection state-wide, used their influence to secure adequate state legislation which would make this work effective. The private timber owners had been carrying on forest protection for some years and urged the state to accept its responsibility for cooperation in the protection of privately owned timber lands from fire, through an enforceable fire code and substantial financial support. As a final factor came the hot dry season of 1910 with its destructive fires in southern Oregon, Coos and Marion Counties as well as other sections of the state. The timber loss during the season has been estimated at two billion board feet. As a result of these various factors, the legislature in 1911 created the present state board of forestry, enacted a progressive forest code and appropriated $60,000 for the purpose of carrying out the work of the department for the biennium.
An examination of the original code as passed by this legislature shows the broad vision of the men who were responsible for the drafting of the laws. The provisions relative to the creation of the board are still the same, with the exception that one additional member has been added; this a representative of the Western Pine Association. Furthermore, while the original laws as passed by that legislature are not on the statute books, having been broadened through amendments, nevertheless the intent is still incorporated in the present laws of the state of Oregon dealing with forest administration.

Board Membership. The membership of the Oregon State Board of Forestry and the method of appointment is somewhat unique in legislative matters and Oregon is the only state in the Union where the forestry board is created in this manner. The law provides that the governor of the state and the dean of the school of forestry at Oregon State College are ex-officio members. The remaining six members are appointed by the governor upon authoritative recommendation of the following organizations: U. S. Forest Service, Oregon Forest Fire Association, Oregon Wool Growers' Association, Oregon State Grange, West Coast Lumbermen's Association, and the Western Pine Association. Thus it will be seen that the board is composed of a group of men who represent organizations that are vitally interested in every phase of forest activity and therefore take an intense interest in the development of a broad state policy.
Duties of State Forester. While the board itself determines these policies and takes an active part in administration, the responsibility for carrying out the provisions of the code and developing these policies lies with the state forester. His duties are definitely fixed under the law, which states that he shall;

"Execute all matters pertaining to forestry within the jurisdiction of the state; devise and promulgate rules and regulations for the enforcement of the state fire laws and for the protection of forest lands, not inconsistent with law, and within the provisions of this act; appoint and instruct fire wardens as provided for in this act; direct the improvement and protection of state forest lands; collect data relative to forest conditions; take such action as is authorized by law to prevent and extinguish forest brush and grass fires; enforce all laws pertaining to forest and brush-covered land and prosecute for any violation of said laws; cooperate with land owners, counties or others in forest protection; advise and encourage reforestation; and publish such information on forestry as he may deem wise."

Protection Limited. These duties and authority are very broad, including all matters pertaining to forestry under state jurisdiction as indicated in the first statement. The first efforts were confined mainly to fire control and limited principally to protection of merchantable values. This included direct action through cooperative forest patrol and public appeal by press releases and addresses. Limitation of protection was due to two causes. First, patrol and suppression was financed largely by the private owners through voluntary contribution, and their interests lay in the merchantable timber. Fires in cutover lands were con
sidered of minor importance and were suppressed only when they became a threat to valuable holdings. Second, there was only a small area of cutover land and it did not enter largely into future forest development. However, with a tremendous increase in lumber cut with its correspondingly increasing acreage of cutover lands, there came a realization of the importance of these lands in a state-wide forest policy, with the eventual result that through legislation, federal financial aid and education, protection was extended to all forest lands in the state.

Cooperation. One of the fundamental policies of the early organization, and one which has been adhered to throughout the twenty-five years of the board's existence, is that of cooperation - cooperation between the state, the private owners, and the federal government. This policy, especially in connection with the private owners, has been one of the main reasons for the development of the present protective organization. At the time the board was established, there were two such organizations functioning in the state, engaged solely in patrol and suppression work on membership lands. Continuation and expansion of this work was one of the early objectives of the board, inasmuch as experience had shown it to be founded on sound principles and furthermore, all protection on the part of the private owner was of a voluntary nature and it was, therefore, felt that with state funds being made available it would be possible to cooperate with these organizations in a financial way and aid them in the protection of timber.
The success of this policy can be seen in the fact that prior to 1911 there were only two associations; in 1912 there were eight, and one year later there were sixteen organized throughout the state for the protection of timber. In this three-year period, all forest land in the state was protected with the exception of what is known as the John Day area. No association existed in that territory, making it impossible for the state to underwrite the entire forest protection bill for the unit. It was organized as a protective unit under the direct administration of the state with the passage of the fire patrol law in 1913.
THE FOREST PATROL LAW

The various associations were faced with a serious problem due to the fact that membership therein was entirely voluntary and hence any contribution to the costs of the organization had to be on a voluntary basis from the membership. Throughout each of the organizations there were many acres of lands which were not represented by membership. The owners of these tracts either did not believe in forest protection, feeling that it was an unnecessary expense, or felt that the tract of land must be protected by the association. This latter assumption was true, inasmuch as these tracts of land were scattered throughout the association membership and any fire originating thereon threatened the property belonging to some association member. Consequently, all fires starting on land within a unit, regardless of whether the individual owner contributed to the association or not, had to be suppressed.

Protection Made Compulsory. This defect in the forest laws of the state was partially corrected in 1913 when the state legislature passed what is known as the forest patrol law. This was the first law of this nature that was ever passed in any state of the Union but has resulted in such efficient fire protection that many states have patterned their forest laws after the Oregon original. The law in brief stated that every owner of forest land must provide protection therefor and, in case of his failure to do
so, it was the duty of the state forester to provide such protection. Additional provisions were made whereby the individual might carry on his work through private patrol or resident exemption. Where the owner elected to conduct a private patrol, the degree of efficiency must equal that of fifty per cent of the adjacent timber land owners who were in good faith protecting their timber lands from fire. The resident exemption provision provides that where an individual resides on his land he should be exempt from the provision of the law up to a maximum of 160 acres. Where the owner either refused or failed to protect his timber lands, it was the duty of the state forester to carry on the work and the costs thereof could be collected in the same manner and at the same time as taxes are collected.

There were two fundamental weaknesses in this law, the first being that it limited the cost of protection and suppression to five cents per acre per year. The second weakness was in the definition of timber land wherein it was so defined as to include only merchantable timber or cut-over land on which the slash hazard had not yet been reduced. In other words, as soon as any operator had disposed of his slash through burning, his responsibility for protection then ceased. This was a serious defect, inasmuch as figures show that the majority of fires occur on cut-over land regardless of the fact as to whether the slash hazard has been reduced, and the greater majority of expenditures are made on the suppression of fires in such areas. To insure forest perpetuation,
it is just as essential to protect cut-over lands as the merchantable values.

**Law Amended.** Both these weaknesses in the law were corrected by the 1925 legislature. This body provided that the costs per acre when exceeding five cents could be placed on the tax roll upon the proper showing that such funds had been expended and a certification made by the Board of Forestry to that effect. Cut-over lands were also included in the definition of forest lands and this made it possible to extend the provision of the law to any forest area which constituted a hazard. This was proper, inasmuch as the fire patrol law is not insurance and therefore not based on value, but is based on the police power of the state. It is assumed that no individual is allowed to maintain a menace to life of property without taking adequate precaution to reduce that hazard. Therefore, the legislature wisely stated that forest land shall include any land that has sufficient timber standing or down with enough forest debris on the land to constitute a fire hazard. However, the forest patrol law did not have clear sailing throughout the twenty-five years of forestry in Oregon. Its constitutionality was attacked in 1923 and an adverse decision given by the circuit court of Douglas County. Upon appeal the decision of the lower court was reversed and the forest patrol law held as a proper police regulation for the protection of the forests. (1)

(1) First State Bank v. Kendall Lumber Company, 107 Ore. (213 P. 142)
Revision of the method of taxing both merchantable timber and cutover lands in Oregon has long received the attention of foresters, economists and timber land owners, and definite action to secure relief along these lines was first attempted in connection with the denuded forest areas. Because of the utter dependence of the governing bodies upon the tax income for financial assistance in carrying on the public business, revision of the tax system on merchantable timber was too involved a problem to move hastily. It was first necessary, through intensive research, to study all the related problems before taking definite action.

Such an involved investigation was not necessary in connection with the cutover lands, inasmuch as the majority of the tax base had already been removed and lands were assessed only on the bare land values. Tax income was therefore small in comparison to the total tax load. However, studies did indicate that in the majority of the counties of the state assessed valuations on such lands were so high as to make the tax load a decided burden and thereby became one of the factors in forcing owners to let such lands go delinquent and revert to the counties.

Twelve years ago a measure was introduced in the legislature which was designed to offer such tax relief. It failed to pass and a similar bill introduced at the following session received the endorsement of the legislature but was vetoed by the
governor. A general lack of knowledge of both tax and reforestation problems was indicated in the proposed bills with the result that a commission was appointed in 1925 to study the problem. The result was the drafting of a bill which was very similar to the reforestation law which was passed at the 1929 legislative session.

**Land Classification.** The law provided that all lands essentially forest in character which were not taxed on the basis of the timber values thereon could be classified as reforestation lands, following a public hearing and recommendations by the State Board of Forestry and upon the issuance of a final order by the State Tax Commission. One outstanding feature of the law is the fact that classification is not optional with the owner. It depends upon the character of the land and the absence of merchantable values.

**Yield Tax.** Following the classification of the land, it then becomes subject to a flat annual forest fee of five cents per acre and a twelve and one-half per cent yield tax at the time any products are harvested. This yield tax is based upon the unit value of the products immediately prior to harvest and is fixed by a determination of similar values on active operations in the same area. All forest fees and yield taxes are paid to the counties in which the lands lie and are allotted the various taxing units in a similar manner as other taxes are distributed.

The constitutionality of the yield tax provision of the law was questioned at one of the hearings on the grounds that it accrued as the timber increased in value and therefore constituted
a lien on the land with the result that a clear title could not be given in transferring reforestation lands to the federal government. The Attorney General held that this was not the case, that the yield tax does not accrue until the actual harvesting of the timber takes place. Hence, in case all forest fees and any yield tax due on timber actually cut at the time of transfer are paid, no cloud exists on the title. Since that time a large acreage of eastern Oregon cutover lands have been transferred to the National Forests.

Appeal. While considerable authority rests with the Board of Forestry and Tax Commission in the classification of forest lands and the determination of values, any aggrieved owner may appeal from any decision to the circuit court. However, under the policy of cooperative administration as adopted such action has never been necessary.

Results Accomplished. During the period the law has been in operation, a total of 919,457.95 acres of land have been classified under the statute. However, a total of 94,240.60 acres have been removed, leaving a net area of 855,217.15 acres. The majority of the declassified lands are areas that have been acquired by the federal government. This includes lands in Clackamas County which are necessary for the maintenance of a municipal water supply and a large tract in Deschutes that has been exchanged for National Forest stumpage.
For some years eastern Oregon land owners objected to the law, claiming that the five cents per acre forest fee was in excess of the annual tax bill under the old ad valorem system of taxation, and that there was an added burden in the provision which classified forage as a forest crop, thereby requiring a yield tax payment on grazing fees. During the 1935 legislative session, forage was eliminated as a forest crop and the annual forest fee was reduced to four cents per acre in the eastern part of the state.

Since the passage of the law there has been an actual payment of $2613.98 under the yield tax provisions. This includes timber $1,666.08. Christmas trees $32.61 and forage $915.29. Tracts logged included areas containing some merchantable timber at the time of classification which was not being assessed by the county courts on this value. Some of this consisted of second growth timber while others were scattering old growth trees remaining after a fire or long ends left during donkey logging. In most instances a bond has been required by the state forester to insure payment of the yield tax to the counties at the time it becomes due.

The reforestation law is not a cure-all for the ills of instability of land ownership. There are many other economic factors that tend to force private timber land owners to abandon cutover lands. However, an equitable system of taxation of reforested lands, wherein the owner can determine with some degree
of accuracy his accumulated tax bill is one of the essentials of permanent forest production. The reforestation law is gaining headway. Numerous owners are retaining title to their lands because of it, while many others have indicated that they would do so in case their lands are classified.
OPERATORS' PERMIT LAW

During the past three years, there have been numerous amendments and additions to the forest code of the state designed to simplify law enforcement and give the state forester increased authority in fire prevention measures. Of these, the operator's permit law and the snag falling law are the most progressive steps in forestry legislation that have been enacted in the state in recent years. The ultimate objective of fire prevention is reduction of the annual acreage burned to .15 of one per cent of the total area requiring protection and with proper administration and enforcement these two laws will be of great aid to the protective organizations in reaching that ideal.

Their passage was largely due to the serious fires which occurred during the season of 1933. The governor in September of that year appointed a committee consisting of representatives of the state forester's office, the regional office of the U. S. Forest Service and the Pacific Northwest Experiment Station, requesting that an analysis be made of the situation with definite recommendations as to legislative measures necessary to reduce or eliminate the possibilities of such destructive fires as occurred in Tillamook County during 1933. On November 14, 1933, this committee submitted a report which included the following definite recommendations: (1)

1. Enactment of a law requiring a permit to carry on industrial operations in forest areas during the closed season,

(1) Report of the Committee on Prevention of Forest Fires to Governor Heizer, November 14, 1933.
and giving the state forester authority to close operations
during periods of high fire hazard.

2. Requiring falling of snags currently with logging
operations.

3. Increased appropriations in order to enlarge the
forest law enforcement program and to curb incendiariann.

4. Construction of additional roads, trails, tele-
phone lines and other improvements.

In a special message to the second special legislative
session, 1933, the governor submitted an emergency measure pro-
viding for closing of operations during periods of high fire
hazard. It received favorable consideration and became effective
on May 15, 1934, the beginning of the closed season. This law
may be briefly summarized as follows:

1. During periods of high fire hazard in western Oregon
due to weather conditions or any excessive amount of debris on the
ground, and upon notice issued by the state forester to that effect,
it becomes unlawful to use fire in any form on forest land, except
for the purpose of backfiring under supervision of the state forest-
er, or to use any power equipment in any form in woods operations;

2. All operators using any power equipment must secure
a permit during the closed season which shall provide certain re-
quirements to prevent the start of fire, to close operations upon
the request of the state forester, to appoint an authorized
representative who will have power to act in case of closures and who is available at all times by means of direct communication and to maintain weather instruments at a cost of not to exceed $25.00 if so required by the state forester.

3. The law gives the state forester authority to suspend permits during periods of high fire hazard; to suspend, revoke or refuse them because of non-compliance with the forest laws of the state or because of an excessive amount of debris on the ground.

Closely analyzed, it will be seen that the law gives the state forester very wide authority and involves a tremendous responsibility in its intelligent and fair administration. It requires a determination of several factors involving judgment which might be more or less controversial. This would include hazardous weather periods, what constitutes a slash hazard and precautionary requirements necessary not only to safeguard old slash but to protect and eliminate the hazard in the active operation.

Inspectors Enforce Law. Responsibility for the direct administration of the provisions of the law rest with the various inspectors throughout the western part of the state. They are provided with application forms and wherever possible make direct contact with the operator or owner, getting the required information and securing his signature. These applications include the location of the operation and, if logging, the acreage and location of
area to be logged during the current year, unburned slash of the previous year and the current slash, and the name of the person to be notified in case of a closure. At the same time a complete equipment and slash inspection is made giving the operator instructions as to tools and precautionary measures required under the forest laws, and the action to be taken to reduce the slash hazard and get it in readiness for fall burning. This later involved a matter of judgment but prior to enactment of the snag law, usually requires the falling of all snags, especially those along the exterior boundaries of the slash area, construction of fire lines and at times additional fire fighting equipment. All permit applications are countersigned by the inspector and, together with the inspection reports, sent to the state forester. Permits are then issued upon the condition that all requirements be carried out within the time specified in the report. Subsequent inspections are made throughout the summer to determine if orders are being carried out.

**Endorsed By Operators.** There was a general endorsement of the provisions of the law from the operators affected. Especially did they feel that it was a decided guarantee of protection from an adjacent careless operator who might allow a destructive fire to get away. There was an honest desire and effort on the part of the majority to bring tools up to the proper standard and take the required protective measures. Others, less willing to cooperate, knew that negligence or law violations
would result in a cancellation of the permit until such time as conditions were corrected, thereby forcing a shutdown. Objections were received from individuals who felt that closures resulted in crews leaving the woods, thus reducing the available fire fighting personnel in case of a fire, others considered their operations non-hazardous, while others had a justified criticism in that operating refuse was necessary to keep steam in mills and this was necessary to operate fire pumps. Failure of pumps would result in voiding the insurance. In these latter cases, the mills had a sufficient reserve supply to last during the shutdown. Experience proves this to be an excellent piece of forest legislation. It is effective, and properly administered will not only result in the cooperation of the majority of the operators but will go far in reducing property losses through fire.
SNAK FALING LAW

Snags represent one of the most serious fire hazards faced by the protective organizations. They contribute more to the spread of fire than any other single factor and the failure to control the majority of destructive fires in the early stages has been largely due to the existence of snags. Elimination of this hazard is necessary if adequate protection of the forests of the state is to be accomplished. However, in order to carry out only partial snag falling activities, such as along roads and natural fire breaks in areas that have been burned or logged in the past, would require an estimated sum of nearly two and one-half million dollars to cover the lands coming under the jurisdiction of the state forester alone. This becomes more of a public problem than one for the private individuals. Nevertheless, it is economically sound to carry on snag falling to some extent currently with logging and it was with this object in mind that the snag falling law was enacted. The principal provisions of this law are as follows:

1. It applies to all of western Oregon with the exception of Josephine and Jackson counties.

2. In areas where all of the merchantable timber is cut, the operator must fall all snags over 25 feet high and 16 inches in diameter.

3. Where there is an excessive number of snags due to fire,
insect attack or windthrow, the number per acre required to be felled cannot exceed the average number of snags in green timber in the same county. However, under such conditions the state forester can indicate the area wherein the work is to be done, such as along roads or natural fire breaks.

Board Acts On Law. Under the provisions of the law which limited the number of snags to be felled on certain areas, it was necessary to make a field study to determine the average number of snags in green timber in each county affected by the law. This work was started early in the spring and consisted of running many strips in the western counties of the state and securing definite information as to the average number of snags per acre. The findings were presented to the board at the annual meeting with the result that the maximum number that can be required felled in areas killed by fire, insects or windthrow is as follows: Three per acre in Benton, Washington and Yamhill; four per acre in Clatsop, Clackamas, Coos, Curry, Lane, Linn, Marion and Tillamook; and five in Columbia, Douglas, Lincoln and Polk. (1)

In areas of green timber all the snags must be felled, but in the partially denuded areas there is an administrative problem involved in that the state forester can relieve the operator from all provisions of the law or indicate any number up to the maximum and the area wherein they are to be felled. However,

(1) Minutes of Meeting of State Board of Forestry, December 7, 1935.
it is not at all likely that complete release will be given in any case, for under practically all conditions the falling of snags can be so ordered as to materially reduce the hazard. No definite, iron clad rule can be adopted as a guide that will cover all cases, for there are so many different factors involved. Each area must be considered as a separate problem and plans outlined and developed to fit the specific case. This is the policy followed and when the problems are more or less involved, as is the case in Tillamook burn, the matter is brought before the board of forestry for consideration and action. Actual enforcement of the law during the past season has been carried out by the various inspectors in conjunction with their regular duties.
ADDITIONAL LEGISLATION

In the establishment of the CCC camps to carry out work projects on state and privately owned timber lands, the president required that the state provide for the maintenance of the improvements and also in case of a profit from the sale of products from state lands due to CCC work, the state would reimburse the federal government for the cost of the work, but not to exceed $3.00 per acre, by payment of fifty per cent of the proceeds of the sale of products. The state legislature at the 1935 session provided for such payment and also appropriated the sum of $20,000 to carry on maintenance work. In areas where camps are still located, the majority of this work is being carried on by the enrollees, but in the areas where camps have been abandoned the work will have to be carried on by the state forester and the associations.

Regulated Use of Forest Lands. Indiscriminate use of forest lands by the public, regardless of the hazard, has been one of the fertile sources of fires. Through legislative enactment there are three definite provisions which regulate the use of forest lands through proclamation of the governor. Where a very high hazard might exist through slash, windfall or some other cause it is possible to make an absolute closure of the area, denying entrance to any individual other than a fire warden. Where the hazard is somewhat less, the visitor must
secure an entrance permit which provides for camping in certain spots, carrying tools suitable for fire fighting and no smoking while traveling. The third provision applies only to individuals who intend to camp at other than established campgrounds. The requirements are the same as for the permit law.

**Acquisition.** Legislation covering the acquisition of forest lands by both the state and the federal government has been acted upon. In the former the state acquisition law was so amended as to permit the state to accept title to county owned lands through donation without the necessity of securing an abstract. The other law was in the nature of an enabling act which authorized the acquisition of forest land by the federal government. It set up a state board of forest conservation consisting of the governor, state forester, chairman of the state tax commission, and two county judges to be selected from counties containing at least 400,000 acres of forest land. Before any land can be acquired by the federal government, the sale must be approved by the county court of the county wherein the lands lie as well as the conservation board.
Forest land ownership in the state of Oregon comes under two main divisions, namely, the federal government and private individuals. Federal lands consist of the national forests, revested Oregon & California railroad grant lands, national parks and Indian reservations. The administration of the latter two rests with the park and Indian services, branches of the department of the interior, while all matters pertaining to the national forests and fire patrol and suppression only on O. & C. lands rests with the forest service. The protection of private lands rests jointly with the state and the private owners. The responsibility of the latter is fixed under the forest patrol law, which provides that every owner of forest lands must protect them against the starting or spread of fire. The state forester's duties in connection therewith are largely of an administrative nature in seeing that all provisions of the law are carried out. However, in undertaking this work he assumes no dictatorial attitude but makes every effort to handle all matters under a policy of cooperation. Out of this has grown a three-cornered cooperative organization consisting of the state, the private owners, and the federal government, necessitated by the inter-related problems and intermingled land ownership. In fixing the boundaries of those areas under the jurisdiction of the state and the forest service, an effort is made to adhere as closely as possible to the respective ownerships. However, owing to this intermingling of ownerships and also topographic features, this is not always possible and
hence lines are frequently drawn with the view of placing the administration in the hands of that organization which can most efficiently and economically conduct the work.

Under these arrangements, there is an excess area of approximately 1,000,000 acres of tax-roll lands that are protected directly by the forest service. This organization is reimbursed for the cost of the work through payment by the state forester of tax-roll collections made within the area. On the other hand, the state units and associations protect 1,603,000 acres of O. & G. lands lying within the respective districts. The patrol of such lands is carried on under contractual relationships with the forest service and the various units are reimbursed for the actual cost of the work upon the presentation of statements of cost to the forest service.

**Protective Units.** The state forester is the administrative head of approximately 11,000,000 acres of forest land, exclusive of that area of tax-roll land which is protected by the forest service. These areas under the state forester include association lands, tax-roll and resident and private patrol areas. In carrying out the work of forest protection, the state area is divided into 18 protective units, consisting of 14 associations and four units patrolled directly by the state forester. Of these associations, two retain their identity but contract the patrol of their lands directly to the forest service. Three others are organized as associations, hold annual meetings, fix assessment rates and consider
annual budgets but contract with the state forester for the direct administration of the work. The balance of the units are regularly organized associations transacting all business in connection with the conduct of the organizations' affairs. The boundaries of the association units are definitely fixed through contracts with the state forester wherein the association agrees to protect all forest land within the exterior boundaries of the association unit.

Costs Collected. Collection of costs on tax-roll lands within the area is made by the state forester under the provision of the forest patrol law; and when such funds are turned over to the state forester they are immediately paid directly to the association and represent reimbursement for funds advanced to carry on the work. The state extends further financial cooperation to the various associations through payment of a part of the salaries of all district wardens. It is customary that these individuals be carried on the state forester's pay roll during the summer months. This amounts to approximately 50 percent of the total salaries of the men. Furthermore, in the majority of the units, the state forester employs inspectors whose entire salaries and expenses are met by the general fund appropriation. In this manner, the state cooperates financially in the work of the district wardens and hence has some administrative authority in the conduct of the affairs of the associations.

Duties of Wardens and Inspectors. There is a definite division between the duties of the district wardens and the inspectors.
The inspectors are responsible for the organization of the patrol, all improvement and maintenance work, as well as fire suppression. The inspector is charged with the responsibility of enforcing all forest laws dealing with equipment and safety measures in connection with all operations carried on in forest areas, inspection of slash areas, enforcement of snag-felling laws, issuance of operators' permits, making of arrests for violation of the forest lands and similar matters. In case of a serious outbreak of fires, the inspectors assist the district wardens in directing fire fighting crews or in organizing the work. There is naturally an overlapping of authority between the two individuals but inasmuch as they are in daily contact with each other, discuss problems and agree upon a course of action, there is very little possibility of conflicting instructions or orders to operators or field men.

The inspectors are assigned to the districts where there is considerable industrial activity, making it a physical impossibility for the district warden to carry out both the protection work and also the inspections. The work of the inspectors has been greatly increased during the past several years owing to additional forestry legislation, such as the passage of the operator's permit law, and the snag-felling requirement. This latter measure has also necessitated carrying men on the pay roll during the winter months, inasmuch as snag falling is not seasonal but must be carried on throughout the year. Without constant supervision of active operating areas, it is quite possible that many individuals would
fail to cut down snags during winter months, resulting in a very difficult problem during the coming season in securing compliance with the law. By increased supervision of all operations, enforcement of the fire laws and a definite effort to secure the sincere cooperation of all operators, it is felt that the hazard created through these operations has been greatly reduced and losses from logging fires have been reduced to a minimum.
OREGON PLANNING COUNCIL
Forestry Division

The Forestry Division of the Oregon Planning Council was created in 1934 for the purpose of analyzing the forest situation as now existing in Oregon and from this information make recommendations designed to correct and improve conditions. This division was divided into eight committees, each of which was assigned the definite task of making a study of closely related forest problems. These committees included public responsibilities; management; fire protection, insects and disease; public acquisition; forest products; watershed and erosion; research, and wildlife. The various committees had a total membership of fifty-seven men, including lumbermen, loggers, representatives of fire protection agencies, county judges, trade journal representatives and both public and private foresters. (1)

In many instances the work of the various committees included matters which had been considered under Article I of the Lumber Code and the conference report of the code committees on forest conservation was available to the committees. Since this report was in harmony with the accepted conceptions of state and national forest policy, it was used largely as a guide in the committee work. Unknowingly this was an excellent step, for the Code was later declared unconstitutional with a resulting let down in any aggressive action on code enforcement by the Lumber Code Authority.

(1) Summary of the Report of the Forestry Division, Nov. 30, 1934, C.J. Burk, Chairman.
or attempt to secure the necessary state and national legislation. It is now apparent that this work will be carried on largely by the Oregon Planning Council.

There has been much unjust criticism of the lumber industry in its policy of "cut out and get out" which leads to land abandonment, and if not checked, to timber bankruptcy. This situation is the definite result of economic conditions. Under an archaic system of taxation that demands its pound of flesh annually and this upon the basis of the assessed valuation of a crop that is harvested but once in many years; with the constant threat of destruction from fire through the acts of a careless public, and with the annual charges of fire protection, interest and other costs continually accumulating, it is impossible for timber owners to follow the ideal silvicultural practices in logging and retrain title to all forest lands with any assurance of profit. No matter how altruistic the individual, it is beyond the financial capacity of most men, under present economic conditions, to carry sufficient timber to insure a perpetual operation. Timbermen approve and support a policy of permanent forest production and many have voluntarily adopted methods of logging which provide these objectives where the financial burden is not so great as to make them economically unsound.

These factors which adversely affect the industry have been recognized for many years and much time and effort has been spent in studying the situation and seeking a solution. Progress has been made as is evidenced by the passage of the state reforesta-
tion law which offered relief from the tax burden on cutover land, state and federal legislation and federal cooperation with the state and private timber owners in the protection of timber lands from fire.

While it is difficult to predict future trends of production, nevertheless there is little doubt that Oregon will suffer a considerable loss in its natural resources through the uneconomic system of logging during the period of transition. While the state as a whole retains the majority of its virgin timber, nevertheless the pinch of timber famine, together with its resultant effects on the economic life of the governmental unit, has been felt in some counties of the state. As a result, they are faced with the difficult problem of either drastic reduction in public expenses or raising funds by shifting the tax burden to other forms of property. Such is the trend throughout Oregon in so far as private timber ownership is concerned and it becomes a definite problem to devise ways and means whereby all the forests of the state may be placed on a sustained yield basis. These were the problems that faced the members of the various committees and a great amount of time and effort was spent in preparing the various reports. These, however, did not confine themselves to private lands alone but took into consideration all forest land in the state - federal, private and state owned.

While the first reports have been completed and analyzed and legislation drafted, some of which has received favorable com-
sideration by the state legislature, all committees are still actively functioning. The objectives are to continue the studies and aggressively endeavor to promote public action which will ultimately result in the stabilization of forest industries and insure continuation of all other activities or conditions dependent upon a permanent timber supply. Some of these values may be more or less intangible, such as recreation, watershed protection and conservation of wild life, but they are highly important to the continued economic life of the state and have their utter dependence upon the forests.

Public Responsibilities and Management. One of the primary requisites before sustained yield may become an actuality is the necessity of stabilizing forest land ownership. With that accomplished, sustained yield is an actual possibility, especially with many of the larger ownerships of the state. However, there should be some inducement, either through state or federal legislation or both, for the owner to enter upon a definite plan of permanent timber production. Such action is easily justified through the knowledge that it insures stable communities, permanent industries and payrolls and an annual tax income. It may take the shape of increased recognition under the Clarke-McNary Act, a definite set-up of timber taxation and the extension of federal forest credits. Such recognition, at least on the same scale, should not be given to the individual who intends only to cut his timber without thought or action toward forest renewal. Many
difficult problems must be solved in the actual establishment of sustained yield units, such as consolidation of individual holdings into a single operation area. In the beginning, it must be confined to the larger private holdings where it is possible to assist operators through adjacent available publicly owned timber.

Into this problem, too, enters the question of taxation, which in itself is one of the principal controlling factors. It is discussed at some length in another section of this report. Taxation is one of the most serious disintegrating factors in the present private timber ownership set-up. Adoption of some equitable system whereby the owner pays the tax bill when he is most able to pay, i.e. at the time of cutting, is essential before any system of stabilized timberland ownership can be worked out satisfactorily. Where sustained yield units are not producing current income whereby taxes can be paid, some plan must be devised to finance the current annual needs of the tax spending bodies. While timber tax revision does not necessarily mean tax reduction, it should be made with due regard to the income producing ability of the land, the tax load on other industries and property and the needs of the governing bodies.

Another factor that enters into the question of permanent forests is the classification of forest lands and the zoning of areas. Desire of many people is to secure cheap land. On the face of things it appears that the homestead is the cheapest, but failing this, logged over land can be purchased for a song. The
usual result is that cheap lands turn out to be the most expensive.
The forests are full of old shacks that stand as monuments to
shattered hopes. The settler found it impossible to make a living
on the land, due to soil conditions, topography or lack of avail-
able tillable land. The result has been destitution and privation
with many individuals going on a relief and becoming a liability
to the public. These farms may be located in isolated districts
or stretched in a shoestring up a narrow valley with a taxable
value that is quite insignificant. Yet these individuals demand
year long roads, schools and all other benefits that are to be de-
rived from the governing bodies. Again they are an unnecessary
drain upon the public. Still yet there is that constant threat of
fire danger. In order to definitely fix forest areas and dedicate
the land solely to the production of timber crops, there should be
a definite program of land classification, and legislation passed
which would prohibit settlement of areas which are primarily suited
to forest growing.

Public Acquisition. Public acquisition of forest land
has been covered to some extent in another section of this report
but it ties in so closely with this subject that it should be
briefly mentioned here. Under the most favorable conditions, it
is unreasonable to expect the private timber land owner to carry
the whole land ownership load. It would be a tremendous financial
burden. Both the federal government and the state should be sub-
stantial owners of forest land so located as to make it possible to
consolidate with private holdings and make the timber available without competitive bidding where the owner indicates his intention of establishing a permanent industry. Thus the public agencies in this way could at least partially control cutting and influence the establishment of sustained yield units. Acquisition should not be confined to privately owned timber land but legislation should be passed whereby title to tax delinquent lands should pass directly to the state.

Protection. In determining improvements or changes in the fire protection system of the state, it is first necessary to set up a definite objective. It has been assumed that it is not unreasonable to attempt to provide a protective organization, develop improvements and carry out hazard reduction that will result in an annual fire loss of not to exceed .15 of one per cent of the total area. An examination of past records shows that this point has been nearly reached on the national forests with a loss of only .17 of one per cent. However, in so far as the state and privately owned timber lands are concerned, there is much improvement to be accomplished. Annual losses now are 1.81 per cent of the area, twelve times the indicated maximum. This high percentage is largely due to the disastrous Tillamook and Wolf Creek fires of 1933.

The present annual cost is 4.5 cents per acre while the estimated cost of adequate protection is placed at 9.7 cents. At the present time, plans are being worked out indicating in detail for state and private lands, the transportation, communication and
detection facilities, and organization required to attain the established objective in fire control work. It is estimated that the cost of physical improvements on lands under the jurisdiction of the State Forester is eleven million dollars, while the annual operating costs would be $1,100,000. Of the former one-third has already been provided for, leaving a balance to be expended of 97 cents per acre. The matter of financing the cost is a serious problem but it is suggested that it can be partially carried out through a permanent CCC organization, use of relief funds and added financial aid by the state and federal government. The CCC has already contributed a large amount of work in fire control, hazard reduction and improvement work. Indications now are that the organization will be made permanent. The state has always lagged in its financial contribution to forest protection, the appropriation being only fifty per cent of the amount recommended under the 50-25-25 program of participation in protection expenditures. Efforts are also being made to secure increased appropriations under the Clarke-McNary Act for cooperation with states in fire prevention and suppression.

Insects and disease have also taken their toll in Oregon timber. The loss from the former in eastern Oregon is estimated at nearly three billion board feet of timber, far more than has been killed in that area by fire. Such a condition certainly demands the attention of both the state and the federal government. While control work has been carried on by the federal government and private
interests, it has been woefully inadequate and should be greatly increased. From the standpoint of loss in taxable values, and industrial payrolls, the state should take an active financial interest in the work. Furthermore, federal cooperation should be provided through amendments to the Clarke-McNary law.

Forest Products. The lumber industry of the Pacific Northwest is on an exploitation basis due to economic conditions. It has resulted in overproduction, sales below cost and waste of usable material. Better and more complete forest utilization will be the result if conditions can be so improved as to make possible the carrying out of the objectives of sustained yield. Such a situation would mean closer utilization and the development of additional markets. It is a public responsibility to ascertain the facts in connection therewith, using the best technical assistance available, and present the information to the industry as a guide in the conduct of business. This would mean a determination of the productive capacity of forest areas in order to arrive at the mill capacity, thereby insuring permanent industries and communities. At the present time there is a serious waste in logging and milling operations, involving material that is sound and usable but on account of certain limitations, usually economic, is not considered merchantable. Under proper economic conditions, this waste material could be manufactured into a finished product and placed on the market. New uses and new markets for wood must be developed. Products of the forests should be manufactured as
The practice of forestry cannot be considered if more than one-third of the usable material is left in the woods.

**Watershed and Erosion.** Maintenance of watersheds and the prevention of erosion are two of the many intangible values resulting from the forests. While they cannot be estimated in terms of dollars and cents, nevertheless they exert a great influence on the economic welfare of the public. Maintenance of forests means a supply of pure water for domestic purposes and regulated stream flow for the purpose of irrigation and hydro-electric development. Stripping the land of its forest cover means excessive drying during summer, with subsequent reduction in stream flow, and excessive run-off during the rainy season, resulting in erosion, silting of reservoirs and floods.

Recommendations include a survey of municipal watersheds and needs of the state as well as a determination of methods of logging to be followed whereby there would be a maximum utilization of the products without decreasing the value of the areas as a source of municipal water supply; quantitative survey of the erosion rate in Oregon and determination of timber cutting methods as related to erosion and runoff.

**Forest Research.** The Pacific Northwest Experiment Station is the only agency in the Northwest devoted solely to forest research and the results of studies made during past years were invaluable to various other committees of the Forestry Division.
in making the reports. Past investigations by the organization included studies in forest economics, including the resource survey and tax delinquencies in western Oregon; characteristics and methods of handling Oregon trees; study of the growth and yield of various tree species; research in the technique of fire prevention, detection and control; and a limited amount of work on range management, forest influences and forest products. Additional work has been carried on cooperatively by the Bureau of Entomology in insect investigations and by the Bureau of Plant Pathology in tree disease work.

The work of the future will, in all probability, be confined to a continuation of the projects already started. This includes the completion in 1936 of the forest resource survey, following which provision should be made for keeping the data current and making it available for all uses. Information is required as to basic reasons for land instability together with the proper apportionment between public and private land ownership. Silvicultural studies should include the habits and requirements of commercial tree species, the logging practices that will promote the best sustained yield management and the proper methods of managing existing farm woodlands.

The field of protection offers almost limitless possibilities. These include factors in fire control that influence the proper distribution of man power, research in tools and equipment, meteorology, hazard reduction, and studies of damage to fire-killed
timber. Insect investigation has been carried on to some extent but should be broadened in an attempt to develop more economic systems of pine beetle control. Other investigations include utilization of forage without damage to other forest resources, erosion and development and utilization of forest products.

**Wild Life.** Wild life is another forest resource, the true worth of which is impossible to indicate in financial terms because of its intangible but nevertheless extremely important esthetic and recreational value. The Oregon forests and streams are the home of many species of wild life including large game animals, fur bearing animals, upland birds and game fish. This valuable resource cannot be conserved and wisely managed without knowing the favorable and unfavorable factors affecting it. Settlement and accessibility of wild life habitat, over-hunting, over-fishing, disease, predators and other minor factors adversely affect this resource. Favorable factors include increased interest in game protection, such as game refuges, closed seasons, bag limits and restocking. A complete study should be made of the wild life assets of the state together with its condition and factors affecting sustained yield management. Efforts should be carried out to improve land and water conditions and provide winter range for both birds and animals. This could be carried out through increase in license fees and CCC assistance.
The Civilian Conservation Corps was made possible through the act of Congress of March 31, 1933, and an executive order issued by the president a few days later. The administrative procedure was outlined in a nation-wide conference held in Washington, D.C., the later part of March of the same year. A director was appointed who was responsible to an advisory council of four members consisting of representatives of the departments of Labor, War, Agriculture, and Interior. Each of these departments were charged with definite responsibilities. The Department of Labor selected the young men for the camps, delegating this authority to the various county relief agencies. The Department of War was commissioned to feed, clothe and house the men and take care of their physical, spiritual and recreational needs. The other two organizations were considered as the work agencies and had jurisdiction over the actual work performed in the woods.

Organization. The plans called for the immediate enrollment of 250,000 men, unmarried, between the ages of 18 and 25, who either had dependents on the relief rolls or were members of families that were on relief. The cash allowance was fixed at $30.00 per month, with the requirement that $25.00 was to be sent to dependents. These orders were later modified in two respects. First, the work agencies were authorized to select and enroll a number of men termed experienced woodsmen. They were chosen because of their
woods experience and for the purpose of aiding inexperienced men in the use of tools. Marital or relief requirements were not considered in their selection. Second, in order to recognize outstanding work and initiative among the enrollees, provisions were made for a number of rated men in each camp. These were designated as leaders and assistants, the former receiving $45.00 per month and the latter $36.00. The number to be selected was limited to five per cent of the camp enrollment for leaders and an additional eight per cent for assistants.

The minimum number of men to be placed in any camp was placed at 200. The various work agencies objected to this on the basis that it would make an unwieldy organization. There would be difficulty in transporting men to the various work projects and would occasionally necessitate concentration of workers, resulting in a decided loss in efficiency. However, the president definitely approved this decision, stating that the program was largely relief and rehabilitation, and the work could be carried on much more satisfactorily by the army where a large number of men were concentrated in camp. The objections of the work agencies were later met through the establishment of "side" or "spike" camps out of the main camps.

Allowable Work Listed. A wide range of work was permissible on federal and state lands, with the restriction on the later to the effect that the state must agree to share with the federal government such profits as may result from the sale of land or its
products as a result of the work done, but was limited to an expenditure by the state of not to exceed $3.00 per acre. Allowable work included the following: (1)

1. Prevention and control of forest fires.
2. Control of forest tree diseases and insects.
3. Fire hazard reduction.
4. Control of soil erosion.
5. Eradication of poisonous plants.
7. Revegetation of overgrazed ranges.
8. Forest administration and fire protection improvements.
9. Forest timber and range surveys.

Work on privately owned lands could be undertaken with the understanding that it should be limited to that which was in the public interest for regional or state wide forest protection against fire, insects and disease and simple flood control measures to arrest gully erosion and flash run-off at the headwaters of mountain streams.

In connection with the character of work that can be done through the CCC, considerable pressure has been brought to bear by county courts, organizations and individuals, to undertake work that clearly does not come within the provisions of the act or the regulations. This has been demonstrated through efforts to have roads constructed that will open up farming communities,

repair of others for the same purpose, work on highways to aid the various counties, construction of dams that are primarily for irrigation and not flood control, and works of a similar nature. The matter is fully covered through a statement by the federal government to the effect that:

"definite commitments were made at the time the Emergency Conservation Work Act was passed that the CCC could not be used in the construction of public roads, meaning roads such as those constructed by the counties and states for general public travel. The purpose of this commitment was to insure the avoidance of competition by the CCC with other labor which more properly might be employed on roads of this character. This principle has been definitely recognized by everyone concerned with the administration of the Emergency Conservation Work program, including the president, himself, and has been reaffirmed by definite decision in a number of cases." (1)

In order that the selection of the enrollees would be equitable among the various states it was decided that this should be based upon population. This, of course, resulted in by far the greater number of the men being selected from the eastern part of the United States. However, the opposite was true in regards to the forest land, and because of this fact it was decided that many of the eastern companies would be sent to the Pacific coast.

Work Efficiency Improves. Naturally, there was confusion and delay in getting the work started. This is not surprising inasmuch as it was a tremendous task, ranking with the war time enlistment and care of men. The men had to be clothed and fed and

(1) C.H. Granger - Memorandum to Senator McNary, February, 1935.
camps constructed of sufficient size to house groups of 200 men each. There was an insufficient supply of small tools, such as axes, shovels and saws; transportation was lacking and there was little of the heavier machinery such as caterpillars and bulldozers. There was some conflict between the army and the work agencies. As a result there was delay in getting the actual woods work efficiently organized and the accomplishments for the first period fell short of expectations. However, with a gradual improvement in the efficiency of the personnel, work plans properly made and carried out, sincere cooperation on the part of both the army and the work agencies and constant addition of supplies and equipment, the whole state camp set-up developed into a smoothly operating unit.

Camp Allocations Fixed. Since the CCC was being handled on such a large scale, covering as it did the entire United States, and frequently necessitating the transfer of camps across the country, it was necessary to restrict the re-location and re-allotment of camps to definite periods. This led to the decision that camps would remain as situated for a minimum period of six months dating from April 1, 1933. The fact that many camps were not established until late in June had no bearing on the matter, the first period ending on October 1, 1933, regardless of the time the camp came in. The result was that camps which were scheduled to move or were abandoned on October 1, did not accomplish the amount of work which would have otherwise been possible.
By the end of 1935 a total of 20 CCC camps had been engaged in work on state and privately owned forest lands, undertaking practically all phases of protection improvements allowable under the federal regulations. Some of these camps were just recently started, others remained for only one or two periods, while still others have continued since the beginning of the second period. The largest number engaged in state and private work at any one time was at the beginning of the October, 1935 period, when eleven camps were placed under state jurisdiction.

Benefits. The work which has been performed by the CCC in forests of the state has been of inestimable benefit. Through the activities of this organization, it has been possible to complete work plans looking to the better protection of forests, which would have required from 20 to 25 years of state and private effort to complete. The financing of practically all of this work has been through the federal government and the responsibility now remaining with the state and private organizations is to see that they are permanently maintained.

Rehabilitation. While it is possible to give some idea as to the actual physical work performed by the men, there is, nevertheless, another accomplishment which cannot be measured by any yardstick. This is the man-building side of the activity and is probably one of the most notable achievements. It has made good citizens and has made men out of a large army of individuals who might have turned to other ways. These young men had not had a job
for a number of years. They were discouraged, disheartened and disappointed with life. They had no opportunity to put into effect the ideas and plans learned in their schooling. While for many of them this was new work and work which they might not have selected themselves, nevertheless, it resulted in the development in most of them of a new ambition, initiative, and self-confidence.
STATE LAND ACQUISITION

The State Board of Forestry early recognized that land acquisition for the purpose of establishing state forests was one of the essentials for carrying out a well-rounded and complete policy for the state. This was included as one of the objectives in a broad forest policy adopted by the state in 1920. As is the case today, the majority of the cut-over land was going tax delinquent, thus becoming a public liability and with eventual ownership going to the counties. Wherever values existed on such lands, it was usually the county policy to sell such land as soon as possible to private individuals, thus starting the same continuous procedure of unstable land ownership.

Under present conditions and with greater and greater public demand for action towards continuous forest production, it becomes one of the principal duties of the board to carry out some such program. This matter deals with a divided ownership of forest land, namely, state, federal and private, and it is necessary to maintain the interest of each through ownership and active participation in the forestry problems. Permanent private ownership of forest lands is contingent on additional factors such as timber tax revision, zoning and insurance of continued state and federal financial cooperation.

Oregon is one of the most backward states in the Union, from the standpoint of state ownership of forest land. At the present time, there is only one state forest which can be considered
as such, this being the Elliott State Forest comprising something over 70,000 acres. The state owns some additional forest land but it is so badly scattered as to make it impossible to administer from the standpoint of permanent wood supplies. The state is in the forestry business but owns practically no forest land.

**State Ownership Necessary.** Wherever state lands exist in any substantial amount, the regulations are fundamentally matters of state legislation, the state itself being the owner and definitely conducting its forestry business in a manner that will be an example and an incentive to private landowners to undertake similar work. All the benefits derived from such forests go directly to the state and the public to be applied in such manner as the state may decide. It is one business the state can enter without fear of criticism from the standpoint of being in a competitive business with private interests. It is also a business that will eventually provide an income to the state. The state has a financial advantage in that no taxes are chargeable against such lands but at the same time the sale of products would be on a competitive basis which would place them on a par with privately owned timber of similar quality and similar accessibility.

While private ownership is considered necessary in order to complete the program, nevertheless it can not be expected to carry the entire load necessary to insure perpetual operation. State ownership makes possible eventual combining with adjacent private lands in a single operating unit. The state could in
effect partially control this situation and require a permanent industrial set-up in the sale of its timber. In this one factor lies one of the principal reasons for state acquisition. Properly carried out with consideration of state acreage, age classes, other ownerships, both private and public, and the needs of communities, it is possible to accomplish the definite goal of forestry—that of stabilized industries and permanent communities.

State Bill Passed. In furthering this policy of land acquisition, a bill was passed at the 1925 session of the legislature which provided that the state could accept land through gift. However, the law was more or less imperfect and no action was taken under it. It was later repealed and another bill passed which authorized the state to accept forest lands through gift or to make outright purchases. A movement was immediately started to secure lands under this act and as a result certain individuals were ready to deed some 15,000 acres of cut-over land to the state. The entire matter fell through when it was found that a clear and merchantable title, acceptable to the attorney general of the state of Oregon, must be provided in making the transfer. The cost of such a title exceeded the actual value of the land and as a result the entire matter was dropped. The law was again amended so that lands could be accepted from the county without the necessity of securing the abstract. While there are no funds available for purchase under this act, nevertheless it is expected that there will be some activity in the near future to secure forest lands from the
various counties in the state.

**Fulmor Act.** The lack of adequate state funds to carry out a broad program of forest acquisition in many of the states of the Union, in spite of efforts to secure action, led to a definite effort on the part of the association of state foresters in cooperation with the United States forest service to secure federal legislation enabling the states through financial cooperation of the federal government to ultimately acquire forest lands as state forests. This led to the drafting of the so-called Fulmor bill which was introduced jointly in both house and senate of the national congress, and after numerous hearings, changes, and almost fatal delays was finally passed and approved on August 29, 1935. The purpose of the bill is expressed in the act which states that it is "for the purpose of stimulating the acquisition, development and proper administration and management of state forests and of insuring coordinated effort by federal and state agencies in carrying out a comprehensive national program of forest land management . . ." Briefly some of the principal provisions of the act are as follows:

1. The secretary of agriculture is authorized to enter into cooperative agreements with appropriate officials of any state for the purpose of acquiring in the name of the United States, by purchase or otherwise, such lands as may be suitable for state forests.

2. In order to reduce the need for public expenditure
and bring about as soon as possible a stabilized landownershisp,
no lands may be acquired under the act after June 30, 1942, unless
the state concerned enacts laws whereby it is possible for tax-
delinquent lands to revert to the state or a political unit and be
established as state forests. Preference in acquisition prior to
that time is given to those states having laws of this nature in
effect.

3. As is the case under present federal land acquisition,
the national forest reservation commission must approve all
purchases.

4. It is also possible for the federal government to
pay accrued taxes less interest and penalties on lands where the
owner desires to donate the land for the purpose of establishing
state forests.

5. Whenever lands are acquired under this act, it then
becomes the duty of the state to pay the entire cost of administra-
tion, development and management of the forests with the exception
of any federal expenditures which might be made for the purpose
of federal unemployment relief.

6. While the agreement between the state and the secre-
tary of agriculture is in effect, one-half of the gross proceeds
from the lands must go to the federal government to be applied on
the purchase price. When the government receives the total amount
expended in the purchase of the land, the title then goes to the state.
7. The law also provides that when the state acquires lands directly under tax delinquency laws at no expense to the federal government the government is then authorized to cooperate financially in the administration and development of such lands but not to exceed over 50 percent of the total cost.

8. An authorization in the amount of $5,000,000 is set up in the bill. This latter item is merely an authorization and it is necessary for the present congress to make a definite appropriation before any purchase can be made.

However, the act now imposes on the states, desiring to enter into a land acquisition program, the responsibility of developing a definite policy including determination of the areas to be selected, the nature of the land cover thereon, whether denuded, second-growth or mature timber, a review of present state laws in order to determine if in conflict with the federal law and whether any additional state legislation is necessary in order to authorize the state forester to enter into the necessary agreements.

Since the Oregon State Board of Forestry has repeatedly expressed itself as favoring state land acquisition and has made efforts through various legislative acts to acquire such land, it can then be considered definitely settled that the next year or so will see the personnel of the department actively engaged in analyzing the situation and making the necessary recommendations to see that state forests are eventually established.
According to the records of the Bureau of Entomology, losses from beetle infestation in the ponderosa pine forests of eastern Oregon during the past five years have reached the staggering amount of 3,805,200,000 board feet. This exceeds by 406,944,000 board feet the timber cut in that region during the same period and is nearly twenty times the fire loss. With emphasis in the past placed more or less upon fire protection and fire losses, there has been little public realization of this distinct threat to the pine forests of eastern Oregon. Continuation of this annual loss on the same scale as in the past means that it will be an absolute impossibility under any plan of forest conservation to develop permanent forest industries in eastern Oregon. The annual loss is greater than the annual growth. The ultimate result would mean practical extinction of the ponderosa pine. Beetle losses and timber cut during the past five years is indicated in the following tabulation of the Bureau of Entomology:

<table>
<thead>
<tr>
<th>Year</th>
<th>Beetle Loss Board Feet</th>
<th>Timber Cut Board Feet</th>
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<tbody>
<tr>
<td>1931</td>
<td>912,500,000</td>
<td>734,229,000</td>
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<tr>
<td>1932</td>
<td>1,430,000,000</td>
<td>436,754,000</td>
</tr>
<tr>
<td>1933</td>
<td>454,700,000</td>
<td>681,000,000</td>
</tr>
<tr>
<td>1934</td>
<td>570,000,000</td>
<td>681,939,000</td>
</tr>
<tr>
<td>1935</td>
<td>430,000,000</td>
<td>864,324,000</td>
</tr>
<tr>
<td>Total</td>
<td>3,805,200,000</td>
<td>3,398,256,000</td>
</tr>
</tbody>
</table>

The average annual fire loss during the same period is fixed at 39,072,000 board feet. Annual growth is estimated at
one-half of one per cent.

**Large Area Infested.** Spread of beetle infestations in the epidemic stage has progressed since 1911 until it now covers practically all of eastern Oregon with the exception of the northeastern part of the state. As early as 1910 and 1911 the first outbreaks occurred in southern Klamath and Lake Counties, with the result that control operations were started at that time by private enterprise. From there it spread in a northerly direction through the Klamath Indian Reservation and as far north as Bend, although infestation in Deschutes area was not as severe as that further south. By 1930 a severe infestation developed in the pine areas east of Prineville and this has since spread until practically the entire Ochoco National Forest and the western part of the Malheur National Forest has been covered. Considerable infestation has also been found in the privately owned timber east of Fossil as well as the western end of the Umatilla National Forest. In the balance of the pine counties, including the area north of Bend, the infestation has been normal although in the latter area there has been considerable timber killed in the marginal areas.

**Insect Law Passed.** Control operations were started in 1911 in Klamath County by private enterprise and have been carried on each year, but state recognition of the seriousness of the situation did not come until 1921, when, through the insistence of foresters and private timber land owners, the legislature passed the insect pest control law. The law declared forest tree insects a public nuisance and required owners to take the necessary
means to control them. In case of their failure, the work could be performed under the direction of the State Forester and with the approval of the board whenever the owners of sixty per cent of the timber lands in the infested district made written application to the board that a zone of infestation be declared and the work undertaken. Whenever the owners failed to undertake the work, it could be carried on under direction of the state forester and the actual costs incurred would become a lien upon the land.

**Control Work.** Under the provisions of this law, the first zone of infestation, including over a million acres of forest land, was established in Klamath, Lake and Jackson counties. Work was undertaken on all classes of forest land, including federal, state and private, through a cooperative agreement between the state forester, Secretary of Agriculture, Secretary of the Interior, and the Klamath Forest Protective Association. The Association, Indian Service and Forest Service were each allotted a definite area on which to carry out control work.

Work was continued for some time but the federal government was finally forced to withdraw because of lack of funds. However, private individuals have carried on work continuously since that time but only on a small scale in comparison with the total infested area. Another zone was established in privately owned areas northeast of Prineville in the fall of 1933 and work was carried out by owners during the winter of 1933-34. The forest service also worked in adjacent areas.
Methods of control have been developed through a knowledge of the life habits of the beetle. There may be as many as three broods a year, depending on the length of the summer, but effective control can be carried on only during the winter months. The beetles bore through the bark of sound trees and construct irregular galleries in the cambium layer along which the eggs are laid. Larvae develop in a short time and immediately start boring out through the bark. They pupate in the outer surface of the bark and emerge as adult beetles during the first warm days of spring. Beetles in all stages of development may be found during the winter, including eggs, larvae, pupae and now adults. Only through burning can these be destroyed. Infested trees are spotted by trained individuals, the trees are felled, the bark removed and burned. The cost of such work has been as high as $5.00 per thousand but varies with the degree of infestation. It is less in heavy infestations because time is not lost by crews in travel from tree to tree. Work in the area east of Prineville varied from $1.75 for contract work to $2.25 for day labor. The lower cost was due to increased efficiency in work methods and also lower wages occasioned by the depression.

Another method, which is more economical in heavier infestations, is bucking the trees into log lengths, bunching them with either cats or horses and burning these piles. On comparable operations, this method is about 30 per cent less than the hand method. It has the added advantage of clearing the forest of
felled timber and lessening the cost of subsequent logging operations.

The main disadvantage of any control system yet developed is the excessive cost. There are many areas in the state where the epidemic has reached such a stage that it is an economic impossibility to carry on any control work. The greatest need at the present time is research into the subject in order to determine more economical methods of controlling the pest.
The federal government many years ago recognized its definite responsibility in the perpetuation of state and privately owned forests. This responsibility was first recognized financially through the passage of the Weeks law in 1911. The law appropriated $200,000, which was available until spent, for the protection of the forests at the headwaters of navigable streams throughout the United States. Under the federal set-up it was required that the state have a well-organized forestry department. Under these requirements, the state of Oregon was able to qualify under the terms of the Weeks law for a federal allotment for the year of 1911. The sum of $5,000 was allotted to the state but did not become available until late in the season with the result that only $3,300 was spent. During succeeding years the state has always been able to qualify for the maximum amount of such federal allocations and with increased congressional appropriations the sums given the state were gradually increased until it reached a maximum under the Weeks law of approximately $28,000.

New Law Enacted. The Weeks law was, of course a pioneer step in federal cooperation in forest protection with the states and naturally had its weaknesses. The terms of the law restricted cooperation definitely to protection of the headwaters of navigable streams and while this section of the law was liberally interpreted,
nevertheless it did not extend to other cooperative features which were felt to be a federal responsibility. Agitation for a change in this fundamental Weeks law resulted in the appointment in 1923, by congress, of the "Select Committee on Reforestation". It was the duty of this committee to investigate the various forestry problems throughout the United States and acting on its findings develop a broad federal law designed to cover various points of cooperation with the states. As a result of this, the present Clarke-McNary law was submitted to congress in 1924, and passed at that time.

This law had certain fundamental principles, which included cooperation with the states in the protection of state and privately owned timber from fire, assistance in the establishment of nurseries and distribution of stock to farmers for the establishment of woodlots, shelter belts and windbreaks, a study of the forest tax problem of the United States and also amended the old Weeks law relative to the federal acquisition of forest land. As passed in 1924, the Clarke-McNary law carried an authorization for $2,500,000 but made no definite appropriation to carry out the work. The congressional session of 1925 made an appropriation of $660,000 for the purpose of carrying on cooperative fire protection work throughout the United States.

**Aid to State Forestry.** It was, of course, necessary at this time to develop a federal policy as a guide for the distribution of Clarke-McNary funds. The objectives, as set out in the policy covering section 2, were three in number and included stimu-
lation of state, county and private effort; to encourage cooperation among the various agencies interested in forest protection work, and to assist and develop protection organizations in cooperating states. One of the fundamental objectives was to promote and encourage the establishment of a permanent forestry organization in states which had heretofore either failed to organize a department or had carried on protection work only on a minor scale. It was this principle that developed the method of allotting funds to the various states in the country.

For the benefits derived, it was assumed that the protection costs should be borne on the so-called 50-25-25 basis, wherein the private timber owner should contribute 50 percent of the total cost and the balance divided equally between the state and the federal government. There has never been any basis of figures or otherwise for the determination of this proportionate share. It was more or less seized out of the air and no attempt made to justify it. There has been some discussion recently relative to a change in this proportionate basis, with the general idea that public contribution should be increased. One argument supporting this point is the fact that the majority of the fires are caused through public use of the forest and not through use by the owner. Inasmuch as the public is responsible for the majority of the fires, it is felt that there should be more financial recognition by the public agencies of this responsibility.

Financial Allotments Made. The method of determining state
allocations is rather involved, but briefly is as follows: For each state in the Union, an estimate is made of the amount of money necessary to finance the ideal protection organization. In other words, what would it actually cost in any state to put in a protection organization deemed adequate to protect the forests from fires. In such a determination, several factors, of course, must come in for consideration, such as hazard and the ability of the timber to carry the load. In other words, if fire protection costs added to other financial burdens of the private timber owner make it definitely unprofitable to carry the load, it would be throwing money away to attempt to place such an organization in the field. Figures along these lines were developed for all the states in the Union and correlated by the United States Forest Service in Washington, D.C. This set up a definite figure for forest protection throughout the entire United States and it was this figure that was used as a basis for the original Clarke-McNary allotments.

Under the present policy, each state is given what is termed as a regular allotment and this amounts to 8 percent of the estimated cost of adequate protection. The system of forestry developed in the state, whether inefficient or highly efficient, has nothing to do with this allotment. Each state is treated the same, the only requirement being that the federal allotment cannot exceed the amount of money made available by the state for protection.

In addition to this regular allotment, each state is given what is termed an extra allotment, which is a recognition of the
efforts of the state in forest protection. This extra allotment is based on the excess of state and private expenditures for prevention over the regular federal allotment. Financial statements on the calendar year basis are required by the federal government from all the cooperating states. When this excess expenditure is determined, each state receives its pro rata share of the balance of the Clarke-McNary funds. Under the present set-up, the adequate protection figure for Oregon, including both protection and suppression, on state and privately owned forest lands has been placed at $584,000. On the basis of the 8 percent regular allotment, the state for the fiscal year ending June 30, 1936, received $46,720. The excess expenditure for Oregon shows a total of $205,154, which qualified the state for an extra allotment of $45,080, making a total for the fiscal year of $91,800.

State Must Cooperate. There are certain requirements that the state must fulfill in order to qualify for these federal funds. The federal policy definitely states that the forestry organization must be organized on a permanent basis. Furthermore, immediate vigorous action must be taken on all fires regardless of the type of forest land. In other words, the same action must be taken on a fire burning in cut-over or otherwise denuded areas as would be taken on a fire burning in merchantable timber. All cooperating states are working under a written agreement with the secretary of agriculture, and, in keeping with the federal policy, the state has also required that the various associations enter
into similar agreements with the state forester. Under the Oregon set-up of forest protection, which has been developed to a high standard of efficiency through intelligent, constructive forest laws, Oregon stands near the head in the development of a permanent forestry organization and thereby has fulfilled all the state obligations as demanded by the Clarke-McNary act and the policy developed by the federal government as a guide in the administration of the act.

One of the strong points of the Clarke-McNary policy as developed by the United States forest service is the fact that it unqualifiedly subscribes to the merit system for the appointment of the personnel. Forest protection is a specialized line of endeavor and it requires long training to develop men to carry on the work satisfactorily. They have the responsibility of protecting property worth millions of dollars and the action of inexperienced men would mean the loss of a tremendous state asset.

Payments Made To Associations. In the distribution of Clarke-McNary funds to the various associations of the state, a different method has been followed than that adopted in the majority of states in the Union. In most of the states it is customary to allot the funds in the nature of services. Payment of the salaries of the various wardens is made directly by the state and the men distributed in the various forest areas. In Oregon the Clarke-McNary funds are allotted directly to the associations to be used in defraying the expenses of the associations in the same manner as other association funds are used.
It is felt that this policy is sound. The associations are required to sign a Clarke-McNary agreement with the state wherein they accept the responsibility for the patrol of a definite area, giving assurance that immediate action will be taken on any fire. It indicates the confidence of the state in the ability of the association directors to efficiently conduct the affairs of the patrol organization, and also stimulates the interest of private timber land owners in forest protection.

The state actually participates in the work of the associations. One-half of the district warden's salary is paid by the state and the entire salaries and expenses of the various inspectors who are assigned to districts. This gives the state forester a direct representation in and actual contact with the work. Either he or his representatives sit in at all meetings, discuss the budgets and while he has no actual vote in the proceedings, nevertheless his recommendations are almost universally observed. The associations are aware of the fact that they are receiving the funds because of their adherence to certain policies laid down for the perpetuation of the forests.

Clark-McNary Law—Section 6

Farm forestry has a definite place in the program of forestry in the state. It is not only an insurance to the farmer of an income from the sale of wood products, in case the woodland is of sufficient size, but also provides fuel, posts and poles for
use on the farm. Trees add much to the livibility of the farmstead, not only from the aesthetic viewpoint, but also in protecting buildings, stock and crops from the heat of summer and the storms of winter.

Cooperation. For the purpose of encouraging tree planting on farms throughout the nation, the federal government, under Section 4 of the Clarke-McNary act, cooperates with the states on a 50-50 basis in the establishment of nurseries and the production of seedlings. The policy definitely states that reimbursable items include only those expenditures made in the production of trees for the purpose of establishing woodlots, shelterbelts or windbreaks.

Nursery. Under the provisions of this act the State Board of Forestry in 1925 established a nursery seven miles north of Corvallis on the West Side highway. Land was cleared, buildings constructed and an experienced nurseryman placed in charge. In the production of trees emphasis has been placed on those adapted to Oregon conditions. Conifers include ponderosa pine, Douglas fir, Port Orford cedar, western red cedar, European larch, scotch pine, norway spruce and maritime pine. Among the principal broadleaves are black locust, green ash, caragana, black walnut and Russian olive. Some experimental stock is grown in an effort to find a tree that is especially adapted to the arid, treeless areas of Eastern Oregon.

Whether a charge is made for the stock is a matter left to the distributing agency. The board felt that a nominal charge should be made in order to impress upon the purchasers that there
is a value in the trees and thus insure better care in planting. It also serves to prevent individuals from ordering excess stock that cannot be planted.

**Distribution.** Tree distribution met with immediate favor and there has been a gradual increasing demand in spite of the fact that lack of funds have prevented the employment of an extension forester to promote tree planting among the farmers. During the winter of 1925-26 a total of 40,000 seedlings were shipped. This has gradually increased until in 1934-35 a quarter of a million were ordered. In the fall of 1935 a special effort was made to increase distribution with the result that the spring of 1936 saw a total of 750,000 trees sent from the nursery.

Naturally it has been impossible to control tree planting objectives once the trees are in the hands of the farmers. In some few cases the trees have been redistributed by the purchaser to other individuals and used for ornamental planting. The nurseryman's organization objected on the grounds that the state was entering a field adequately covered by commercial nurseries, and selling stock at a price far less than the actual cost of production. As the result of a joint conference the board agreed to confine production to forest trees only, a field not covered by the nurseries, and to require purchasers to sign an agreement that the trees would be planted in accordance with the provisions of the act, and would not be redistributed without written authorization of the state forester.
The increased distribution indicates a wide interest in tree planting. Granges have taken an interest in it with the intention of making a state wide grange project. Four-H forestry clubs throughout the state have carried out planting programs and many trees have gone to the Future Farmers of America. The nursery is definitely fulfilling its objective in establishing woodlands and creating a forest consciousness in the minds of the rural population.
The question of forest taxation is far too involved and complicated to be given detailed analysis, but some general observations can be made as to the necessities of modification in the property tax and the action which has been taken along these lines.

The annual property tax is out of harmony with the particular business of growing forests. While the total tax burden may or may not be excessive, nevertheless the peculiar nature of the industry makes it particularly unbearable on growing forests, especially in non-operating units where there is no income with which to meet the annual tax bill. While the solution of the tax problem is not the only salvation, no widespread development in private forestry can be expected until there is a change in keeping with the character of the business.

As a result of the Federal Forest Taxation Inquiry (1) which has completed recently, several forms of forest legislation have been suggested. The deferred timber tax has been considered as the most suitable for Oregon conditions, and its general provisions have been endorsed by the industry.

The plan calls for the separation of the timber and land values, with the latter taxed annually upon its assessed value similar to other property. The timber would also be assessed

(1) Forest Taxation in the United States, U. S. D. A. Miscellaneous publication No. 218.
in a like manner, but the taxes would be deferred until there was an income from the cutting or sale of timber or other forest products, providing that the owners would not be required to pay in excess of 30 per cent of the stumpage value of the total amount of products harvested.

Since the deferment would mean a serious reduction in funds available for carrying on governmental functions, some provision would have to be made for the advance of money to the counties during the period of deferment. The plan contemplates the establishment of a state timber tax fund, to be set up in the office of the state treasurer, and upon the proper certification of the county officials, 75 per cent of the amount of deferred taxes would be paid to the counties. The state timber tax fund would be reimbursed by the timber owner as cutting was carried on.

The most difficult obstacle which confronts the plan is the provision of the state timber tax fund. Should the state finance it this would require a levy of approximately 2.4 mills to raise the original fund, but in time it would become self liquidating. Should this be impossible or impractical, the only alternative would seem to be through federal forest credits, as recommended under Article X of the Lumber Code. (1) This could be accomplished either through the Reconstruction Finance Corporation or forest credit banks as proposed under the Fletcher Bill (S. 3417).

Another feature which might be controversial is relative to the retention of 25 per cent of the tax by the state. This would mean that the counties would lose the funds and stand the cost of deferment. It might be an incentive to increase the levies, thus shifting the burden directly to the timber owners. However, it is quite possible that a decrease in delinquencies would compensate for the loss. Since the owners, the state and the counties would all benefit, it appears equitable that the cost be divided between the three agencies. At any rate it should be definite so there would be no shift from the state or counties back to the owner.

Special studies have been made of the above tax plan in its application to Oregon conditions and there is a strong possibility that it will be submitted for the consideration of the legislature.
CONCLUSION

Since the creation of the present State Board of Forestry in 1911, there has been a steady development in state forestry. This has been due to progressive legislation; wholehearted cooperation on the part of the state, federal government and the private timber land owners, and adherence to a progressive state forest policy that looks to the permanency of Oregon's forests.

It is an admitted fact that the greatest strides have been made in protection, and with but few exceptions, all legislation has been towards this end. However, protection is the first necessary step if any forest policy can be made permanent.

Sustained yield is the ultimate objective of all forestry practice and it cannot be definitely assured as a state wide program under the present economic conditions. There must be a proper balance of land ownership between the state, private owners and federal government; additional federal legislation which will assure cooperation between all interested agencies; increased state financial aid in protection and research; revision of the tax laws in keeping with the business of forestry, and the zoning of forest areas.
OREGON
PINE FOREST AREAS INFESTED
BY WESTERN PINE BEETLE
STATE PLANNING BOARD

NORMAL INFESTATION
LIGHT TO MILD INFESTATION
HEAVY INFESTATION
HEAVY EPIDEMIC

DATA SHEET 18-14
## VOLUME OF TIMBER, WESTERN OREGON IN MILLIONS OF BOARD FEET

<table>
<thead>
<tr>
<th>Ownership</th>
<th>Douglas Fir</th>
<th>Western Hemlock</th>
<th>Sitka Spruce</th>
<th>Cedar</th>
<th>Other Conifers</th>
<th>Hardwoods</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Forests</td>
<td>82,485.3</td>
<td>16,902.7</td>
<td>335.2</td>
<td>1,719.6</td>
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<td>21.5</td>
<td>118.1</td>
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<td>39,873.6</td>
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<td>716.3</td>
<td>4,634.5</td>
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<td>Indian Lands</td>
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<td>21.0</td>
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<td>7.8</td>
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<td>3.7</td>
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<td><strong>TOTAL</strong></td>
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## VOLUME OF TIMBER, EASTERN OREGON IN MILLIONS OF BOARD FEET

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<thead>
<tr>
<th>Ownership</th>
<th>Ponderosa &amp; Sugar Pine</th>
<th>Western White Douglas Fir</th>
<th>Other Conifers</th>
<th>Total</th>
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<tr>
<td>National Forests</td>
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<td>455</td>
<td>5,600</td>
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<td>Other Federal</td>
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<td>16</td>
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<td>State Lands</td>
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<td>6</td>
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<td>Private</td>
<td>28,655</td>
<td>133</td>
<td>4,151</td>
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<td><strong>TOTAL</strong></td>
<td>67,395</td>
<td>600</td>
<td>10,370</td>
<td>13,874</td>
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Data taken from the federal Resource Survey, Pacific Northwest Experiment Station and 1931 extensive revision of the Capper report.
## Forest Types Western Oregon—Area in Thousands of Acres

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<tr>
<th>Ownership</th>
<th>Coniferous</th>
<th>Coniferous</th>
<th>Deforested</th>
<th>Hardwoods</th>
<th>Total</th>
<th>Protection</th>
<th>Total Forests</th>
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## Forest Types Eastern Oregon—Area in Thousands of Acres

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<th>Deforested</th>
<th>Total</th>
<th>Protection</th>
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<td>199</td>
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Compiled by the Pacific Northwest Experiment Station from the Resource Survey and the 1951 extensive revision of the Capper report.
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<tr>
<th>UNIT</th>
<th>ASSOCIATION ACREAGE</th>
<th>TAX ROLL ACREAGE</th>
<th>O. &amp; C. ACREAGE</th>
<th>Resident and Private Patrol ACREAGE</th>
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*From data assembled in State Forester's office.*
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| Total               | 467.7        | 666.8        | 96.3            | 286.9                  | 482.0    | 974.2                  | 145.0 | 11 | 16 | 16 | 42,955 |

From data assembled in State Forester's office.
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| TOTAL     | 97,954.96 | 182,562.57| 348,353.59| 86,077.59 | 113,545.00| 140,964.24 | 885,217.15

From data assembled in State Forester's Office.
BIBLIOGRAPHY

Administrative Procedure, Sections 1 to 5, Clarke-McNary Act, U.S. Department of Agriculture, 1939.

Annual Reports of the State Forester to the Governor of Oregon, 1911 to 1932, inclusive.


Fairchild, Fred Rogers, Forest Taxation in the United States, United States Department of Agriculture, Miscellaneous Publication No. 218, October, 1935.

Forest Insect Handbook, North Pacific Region, Regional office of the U.S. Forest Service and Bureau of Entomology, April, 1933.


Minutes of the proceedings of the Oregon State Board of Forestry.


Report of the Special Fire Prevention Committee to the Governor of Oregon, November, 1933.

Reports of the Committees and sub-committees of the Forestry Division, Oregon Planning Council, November, 1934.