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# United States Department of Agriculture,

## Division of Forestry.

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### **SUGGESTIONS TO THE LUMBERMEN OF THE UNITED STATES IN BEHALF OF MORE RATIONAL FOREST MANAGEMENT.**

The forestry problem, which has now been agitated for more than a decade, should interest no one more than the lumbermen, who rely upon the forest resources for their business but have thus far appeared indifferent if not opposed to the movement. The problem briefly stated is, how to use our forest wealth so as not to impair its future—how to cut the timber so as not to prevent the reproduction of valuable aftergrowth.

It is conceded by those who plead for a more rational treatment of our forests that the lumber business is not only a legitimate industry, and one of our most important ones, but that from those engaged in this business nothing may be expected in the way of improved and conservative methods that does not yield a profit and an immediate one. It may also be conceded that the present economic conditions which surround the development of our forest resources prohibit in many cases a profitable change from the wasteful methods practiced by those lumbermen at least who depend for their supply upon the purchase of stumpage, and who do not buy and hold large tracts of forest land which they propose to work for continuous supplies and which could advantageously be devoted to continuous forest management. Perhaps our population is not yet dense enough, our virgin supplies not yet sufficiently reduced, to make such forest management profitable save under exceptional conditions.

On the other hand, it will be conceded that the community has an interest in the perpetuity and conservative use of our forest resources and in the preservation of favorable forest conditions, and also that our present treatment of the same is detrimental to this communal interest when thousands of square miles are not only culled wastefully of their best timber, but are also burned over and reduced to wastes, or else grow up to useless brush.

The question is, how can the two interests be adjusted, namely, the

Lumberman's pocket interest, which necessitates or seems to necessitate his wasteful practices, and the communal interest, which ought to prompt more conservative use? The object of this circular is to show to lumbermen that the two interests which seem to have been considered antagonistic are, in fact, identical in many ways, and how at the present juncture lumbermen may assist in adjusting them.

#### SUPPLY AND DEMAND.

That it is now time to consider the question of future supplies may be inferred from the following rough estimate, the only kind possible with our present statistical knowledge. We use in the United States, according to estimates based upon census and other figures, over 22,000,000,000 cubic feet of wood annually. Of this enormous amount (about 350 cubic feet per capita), over 4,000,000,000 cubic feet of the best timber are made into lumber (between 30,000,000,000 and 40,000,000,000 feet, board measure); railroad construction requires about 500,000,000 cubic feet; and fencing takes an equal amount; but by far the largest consumption is for firewood. An uncertain amount is burned up every year in forest fires, which rage over the western mountain country especially, and which swell the total consumption, probably, to beyond 25,000,000,000 cubic feet of wood annually. During the last three decades an increase of about 30 per cent in consumption for each decade is indicated. The area covered with wood growth is less than 500,000,000 acres. If all the land area not known to be treeless or in farms were under forest, the acreage would not exceed 850,000,000 acres, but the lower figure is probably more nearly correct.

From the careful statistics of the German Government and from the records of private forests we know that the annual growth of wood per acre and year does not average more than 55 cubic feet, though under favorable conditions it may rise to double that amount with some species. In this yield are included branches and smaller dimensions down to 3 inches diameter, which are not used in this country. If we refer only to the production of such sizes as are used in this country, our timber at the age of 125 years would be found to have grown at best not more than 35 cubic feet per acre per year. Our present acreage, therefore, even if it were well stocked and well managed could not produce our annual consumption. But we know that much of it is badly stocked, occupied with poor timber, and not cared for. We are therefore consuming much more than the area reproduces, probably double this amount, and with every year the disproportion grows. Were we to assume that 10,000 feet, board measure, is now standing on every acre of the whole forest area—an extravagant estimate, even with the enormous stumpage of the Pacific Coast forests—our area could not supply our needs for much over one hundred years, the time

it takes to produce a good-sized sawlog. Most of the timber we are now cutting is over 200 years old. The probabilities are that the end will be visible much sooner. For the white pine the end—speaking relatively, not absolutely—is now in sight; and the same is true for walnut, yellow poplar, and ash. Hence the need of attention to more careful and more thorough utilization of our timber products, and especially to prevention of unnecessary waste is indicated, even from considerations which relate solely to the pecuniary interests of the lumberman.

### FIRE LEGISLATION.

The most harmful avoidable waste comes from losses by fire. Not only are enormous quantities of timber killed or deteriorated in value by the annual conflagrations, but by the burning of leaf mould and seedlings the ground is made barren and given over to inferior vegetation and scrubs, and desirable reforestation is prevented. It would be in the interest both of lumbermen and of communities to stop this waste. This circular, therefore, appeals to lumbermen not only to enjoin upon their workmen the necessity of a more careful use of fire, but also to be instrumental, especially by associated effort, in bringing about the enactment and enforcement of proper fire legislation. There is no reason why forest property should not be as well protected by the community as any other property, and protection will be afforded if the owners insist upon it.

Following is the draft of a bill which can be applied, more or less modified according to circumstances, in every State, its main features having been drawn from the law enacted for the State of Maine in 1891, and there successfully applied. The writer would lay special stress upon the necessity of entrusting the enforcement of the law to an officer specially charged with and responsible for it. In several States fire legislation is in existence which is satisfactory, except that it lacks the proper machinery to enforce its application.

The principles most needful to keep in view when formulating legislation for protection against forest fires are—

(1) No legislation is effective unless well-organized machinery for its enforcement is provided. The damage done by forest fires extending in many cases far beyond immediate private and personal loss, the State must be represented in such organization.

(2) Responsibility for the execution of the law must be clearly defined and must ultimately rest upon one person, and every facility for ready prosecution of offenders must be at the command of the responsible officer.

(3) None but paid officials can be expected to do efficient service, and financial responsibility in all directions must be recognized as alone productive of care in the performance of duties as well as in obedience to regulations. In the case of corporations the officers most di-

rectly responsible for any damage, as well as the corporation itself, must be amenable to law.

(4) Recognition of common interest in the protection of property can be established only by the creation of financial liability on the part of the community and all its members.

## AN ACT FOR THE PROTECTION OF FOREST PROPERTY.

### FOREST COMMISSIONER.

SECTION 1. Creates a forest commissioner, whose office may be either an enlargement of some existing office or much better a separate one, with adequate compensation in either case, to be appointed by and reporting directly to the governor.

SEC. 2. Prescribes the duties of the forest commissioner, namely to organize, supervise, and be responsible under the provisions of this act for the protection of forest property in the State against fire. In addition he is to collect statistics and other information regarding the forest areas in the State, and the commerce of wood and allied interests; especially such information as will explain the distribution, value, condition, and ownership of the woodland. This information and the results of the operation of this act, together with suggestions for further legislative action to be embodied in annual reports.

SEC. 3. Provides for the giving of a bond by the forest commissioner for the faithful performance of his duties, and fixes fines for such neglect in performing the duties of the office as may be proven, and explains the manner of imposing and collecting such fines.

### ORGANIZATION OF FIRE SERVICE.

SEC. 4. Constitutes the selectmen of towns, or the sheriff's deputies, constables, supervisors, or similar officers, as fire wardens. If preferred, special fire commissioners may be appointed by the forest commissioner with the advice of county commissioners, or both methods of providing fire wardens may be employed together. The towns are to be divided into fire districts, the number and boundaries to be governed by the exigencies in each case, and each district to be under the charge and oversight of one district fire warden. One of these should be designated as town fire warden, to take command in case of large conflagrations. The town fire warden and at least fifty per cent of the district fire wardens should be property owners in the county, unless a sufficient number of such can not be found or a considerable number refuse to serve. A description of each district and the name of the fire warden thereof are to be recorded with the forest commissioner and the town clerk or similar officer.

SEC. 5. Provides for employment of special fire patrols in unorganized places in any county and during dangerous seasons, especially in lumbering districts, and for coöperation of forest owners. Wherever unorganized places exist in a county or so far distant from settlements

as to make discovery of fires and speedy arrival of regular fire wardens impossible, or wherever forest owners whose property is specially endangered require, the forest commissioner may annually appoint special fire patrols to be paid at daily rates, the owner paying one-half the expense and the State the other half, such patrols to be under the regulations of this law, and to report to the nearest fire wardens. The manner of appointment and the matter of compensation and duties are to be formulated by the forest commissioner.

**SEC. 6.** Defines the powers and duties of fire wardens: to take measures necessary for the control and extinction of fires; to post notices of regulations provided in this law and furnished by the forest commissioner; to ascertain the causes of fires and prepare evidence in case of suits; to report each fire at once to the forest commissioner on blanks furnished, giving area burned over, damage, owner, probable origin, measures adopted, and cost of extinguishing; to have authority to call upon any persons in their district for assistance, such persons to receive compensation, as determined by the selectmen or county commissioners, at the rate of not to exceed 15 cents per hour, and to be paid by the town or county upon certification by the forest commissioner.

Persons refusing, when not excused, to assist, or to comply with orders shall forfeit the sum of \$10, the same to be recovered in an action for debt in the name and to the use of the town or county, or for the fire protection fund.

Fire wardens shall be paid \$10 a year as a retainer, besides days' wages at the same rates as sheriffs or similar officers for as many days as they are actually on duty, and shall be responsible for prompt extinction of fires and be amenable to law for neglect of duty. The district fire warden shall call on the town fire warden in case of inability to control fires, and the town fire warden shall have sheriff's power to enlist assistance, as provided in case of a mob.

#### FIRE INDEMNITY FUND.

**SEC. 7.** Provides for the creation of a fire indemnity fund, each county to pay into the State treasury \$1 for each acre burnt over each year, the special fund so constituted to be applied in the maintenance of the system provided by this act and for the payment of damages to those whose forest property has been burned without neglect on their own part or on that of their agents.

The burned areas shall be ascertained by the county surveyor and shall be checked from the reports of fire wardens by the forest commissioner. All fines collected under the provisions of this law shall also accrue to the fire fund.

#### JURISDICTION AND LEGAL REMEDIES.

**SEC. 8.** Establishes jurisdiction and legal proceedings in case of prosecution of incendiaries and adjustment of damages, and imposes

upon every district judge the duty, in charging the grand juries of his district, to call special attention to the penal provisions of this act and of any similar acts providing for offenses against forest property.

SEC. 9. Charges the forest commissioner to issue and publish, by posters and otherwise, reasonable regulations regarding the use of fires, such regulations to contain special consideration of campers, hunters, lumbermen, settlers, colliers, turpentine men, railroads, etc., and to be approved by the governor.

SEC. 10. Makes it a misdemeanor to disobey the posted regulations of the forest commissioner, or to destroy posters, or to originate fires by neglect of the same; provides that the prosecution shall be prepared by the forest commissioner: and imposes fines and imprisonment in addition to damages. Fines should be double the actual damages, one-half to go to the fire fund, one-half to the person damaged.

SEC. 11. Makes it a criminal act subject to indictment to willfully set fires, and imposes fine and imprisonment.

SEC. 12. Any person whose forest property is damaged by fire not originated by his own neglect, and who is able to prove neglect on the part of the fire warden, may call on the forest commissioner for award of damages, whereupon the forest commissioner, in conjunction with the county authorities, shall investigate the case and shall refer his findings to the judicial officer of the district, who shall charge the grand jury to indict any offender against this act and adjudge any neglectful fire warden, or other officer, or any person refusing to act upon order of the fire warden.

Any neglect on the part of the forest commissioner to investigate and find in each case within one year from the appeal of the owner shall be followed by dismissal, unless reasonable cause for failure be shown.

#### LIABILITY OF RAILROADS.

SEC. 13. Charges railroad companies to keep their right of way free from inflammable material by burning, under proper care, before certain dates to be established by the forest commissioner. Failure to do so upon notification by the commissioner shall be followed by the arrest of the superintendent of the section, who shall be liable *prima facie* to procedure under section 10.

SEC. 14. Provides for the use of spark arresters, failure to comply with this provision to be followed by arrest of the superintendent or other officer in charge of the motive power and by procedure under section 10.

SEC. 15. Fires originating from the tracks of a railroad company shall be *prima facie* evidence of neglect on the part of the company, and the engineer and fireman shall be liable to arrest and procedure under section 10.

SEC. 16. In all cases where a fire originates through neglect of a



railroad company or its agents, both the company and its officers shall be liable for damages under the provisions of section 12.

SEC. 17. Establishes special liabilities for damage by fires in case of railroads under construction.

#### FIRE INSURANCE AND STOCK LAWS.

SEC. 18. Provides for the incorporation of forest fire insurance companies. In States where cattle are allowed to roam provisions to stop this practice should be enacted.

#### FURTHER DUTIES OF FOREST COMMISSIONERS.

SEC. 19. Defines minor duties of forest commissioners, namely, to cooperate with superintendents of schools and other educational institutions in awakening an interest in behalf of forestry and rational forest use.

SEC. 20. Provides for salary and other expenses of the office of forest commissioner, which should be liberal in proportion to the responsibility of the office.

SEC. 21. Repeals all acts and parts of acts inconsistent with provisions of this act.

#### PUBLIC TIMBER LANDS.

There is one other immediately attainable, practical, and desirable step possible toward improvement of existing conditions. It is a change in the methods employed in the disposal of the public timber lands. Under present regulations lumbermen and most bona fide consumers can secure public timber only by circumvention, direct or indirect, of the law. As a consequence fraud and trespass, wasteful cutting, illegal acquisition of lands and material, destruction by fire, and abuse of the administration when it has attempted to execute the law, have been the rule.

The management of this part of the public domain has been denounced as unsatisfactory by every administration for the last thirty years, without securing legislative redress.

A tentative change was inaugurated by the law of March 3, 1891, which gave power to the President to reserve timber lands for forest purposes. Under this act 13,056,440 acres out of the 60,000,000 or 70,000,000 acres of public timber land remaining have so far been reserved. It is desirable that this policy be extended to the effect of withdrawing all public timber lands from disposal by sale or entry and of substituting disposal of stumpage by licenses under certain regulations somewhat similar to the Canadian systems, providing at the same time for a rational method of protection, and eventually for a regulated forest management.

In such legislation the needs of the resident population, as well as

of the lumber business, must be duly considered, and the obligation of protecting the property against destruction and devastation must be placed where it belongs, namely, upon the Government, which, representing the community, must be responsible for all interests of the future. To aid in the protection against fire and trespass, the Army might be used, a measure which has been most successfully employed in the national parks.

It would appear that this method of protecting the communal interest in forests would at the same time be advantageous to the future of the lumber business. All lumbermen, therefore, interested in those sections of the country where public timber lands are situated, and especially all lumbermen's associations, should be concerned in the passage of such legislation, by which, in part at least, their own pecuniary interest and that of the community may be harmonized, and an example of what rational forest management contemplates may be established for imitation by private forest owners.

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