

A SURVEY OF RESEARCH IN FOREST LAND OWNERSHIP

*Report of a Special Committee
on Research in Forest Economics*

Advisory Committee on Social and Economic Research in Agriculture

THE SOCIAL SCIENCE RESEARCH COUNCIL

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INTRODUCTION

Since 1931 the Social Science Research Council has given increased consideration to forestry as a field in which the social as well as the natural sciences must be utilized in working out satisfactory solutions for its problems. The Committee on Social and Economic Research in Agriculture delegated to special committees the task of dealing with graduate training in forest economics and with research in forest economics. The report of the latter committee, prepared by W. N. Sparhawk, appeared in 1936 under the title of A survey of research in forest economics. Further delineation of the field led to the outlining of several limited subjects of immediate importance which should be treated in more detail, and to the appointment of the present committee to give further consideration to the subject of forest ownership.

There is urgent need for research in this field. As the significant and permanent place of the forest in our national economy has been recognized with increasing force, it has become more and more evident that policies and programs for the perpetuation and improvement of the forests must be based on a thorough understanding of the conditions of forest land ownership.

Forests are a natural resource of great material consequence to the people of the United States. One-third of the country's total land area, chiefly unsuited or not needed for other use, is forest

land,^{1/} and approximately a million and a half persons are employed in

1/ For purposes of this study, "forest land" is broadly defined. It includes not only land bearing commercial forests, but also non-commercial woodland which may never produce a marketable timber crop, and likewise land which may not now be in forest but which is given over to forest use. In addition, it applies to abandoned agricultural land which, because of its character, should be devoted to forest purposes.

utilization of the timber, producing annually goods valued at about two billion dollars. Yet the length of time required to raise a crop of merchantable timber on land devoid of growing trees, and the modest return obtainable from investment even in well-managed holdings of diversely aged stock, give a distinctive character to the business of growing forests. These factors attach peculiar importance to the character of ownership in forest land. Continued productiveness of the land and immediate and future financial profit are matters of concern alike to the owner and to the general public.

In addition, the general public is tremendously interested in the non-timber yield of the forest, which lends itself readily to multiple use. In many localities forest land is utilized as range because of the forage which it produces. A use bulking ever larger on the forester's horizon is recreation, providing wholesome release from workaday life for thousands, and a source of income for increasing numbers of land owners and operators. Other uses of forest land are the production of wildlife for both commercial and recreational purposes; the protection of domestic water supplies and sources of

water power; the prevention of floods; the control of erosion by water and wind; the amelioration of climatic conditions; and the retention of aesthetic values.

The formulation of programs of forest land acquisition by public agencies has raised questions of policy. The "new public domain", created largely by the forced or voluntary abandonment of land on a large scale by private owners, has raised the issue of administration or disposal of such property. Likewise, there are new problems as well as old concerning public regulation and encouragement of private forestry. These and other problems, more prominent now than ever before, need to be solved in order to promote stable and efficient ownership for the benefit of private individuals and the public as a whole.

At the base of any discussion of forest plans or policy must be a knowledge of the facts of forest land ownership. No movement for the improvement of conditions involving forest enterprise can be carried to a successful conclusion until the ownership situation is encompassed. Research is necessary to obtain and understand the facts of ownership patterns, the relation of public policy to ownership, the intent or objectives of owners, and the kinship between ownership of forest land and the utilitarian phases of forest industry.

In touching these issues and others, it is the object of this report to review the progress already made in research on forest land ownership, and to suggest lines for further investigation. For this purpose the field has been broadly interpreted as including many problems which do not deal directly with ownership as such, but which do

have an important bearing on the type of ownership likely to prevail under certain conditions and on the probable results of that type of ownership from the standpoint of both the owner and the public. It is not intended to discuss detailed methodology, or even to prepare outlines for the investigation of specific projects, but rather to indicate the general area to be covered and to point out the lines of attack, leaving to the individual investigator the final decision as to the exact field to be covered and the tactics to be employed.

Several of the lines of research here proposed are in direct accord with the policy of the Social Science Research Council to encourage cooperation among related disciplines. For example, the forester who deals with land-use zoning would profit by legal training; one who meets the problems of part-time farm and forest labor should be both forest economist and rural sociologist; the expert in forest taxation must needs be a student of government; and the methods of the historian would prove helpful in approaching many phases of forest land ownership. It is hoped that this report will illustrate the necessity of adequate training in more than one social science to insure the proper prosecution of many of the studies proposed.

The report was prepared by Dr. Edmond S. Meany, Jr., of the Hill School, under the direction of the committee. In order to avoid misunderstanding, the fact should be emphasized that his study was necessarily an exploratory one with no claim to completeness, and that it is intended to be suggestive rather than definitive. The references

cited are illustrative rather than exhaustive and frequently contain extensive bibliographies to which the student will wish to refer. In spite of these limitations the committee hopes and believes that the report will be of use in presenting a reasonably accurate picture of the inadequacy of previous research in a field of such major importance as that of forest ownership, and in suggesting fruitful lines for further investigation.

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STATUS AND TRENDS IN FOREST LAND OWNERSHIP

A knowledge of the facts of forest land ownership is essential as a basis for discussion or action involving many phases of forestry and the conduct of forest industries. In the increasing volume of investigations and published reports on these subjects in the past few years, there is little information applying directly to forest land ownership. While the need of research in this field has been recognized,^{1/}

^{1/} See, e.g., Clapp, Earle H. A national program of forest research. Report of a special committee on forest research of the Washington Section of the Society of American Foresters. Washington, D.C., 1926. Pp. 134-135.

"Major proposals of the Copeland Report." Jour. Forestry, 32: 174-179. 1934.

practical exigencies have focused attention on other subjects which seemed to be more pressing. Wider studies of general land utilization, usually predicated upon the hope of active land planning, have frequently neglected or minimized the importance of a thorough knowledge of the present pattern and trends of land ownership. Regardless of the pressure placed upon policy-forming bodies for the formulation of programs for better utilization, it is with the owners of land that execution of the programs must rest. In order to prosecute research necessary to the best fulfillment of objectives of policy and programs, public and private, the collection of requisite data is fundamental.

In the absence of collected data relating to forest land ownership, students and agencies desiring to approach the problem must conduct

studies largely empirical or fact-finding in nature. Once the facts are assembled, conclusions may be drawn as to the present distribution of ownership, its recent changes, its trends, and its effects upon both private and public enterprise and welfare.

Up to the present time there has been little opportunity for accurate comparison in this field, the Bureau of Corporations report of a third of a century ago^{2/} providing the most detailed and comprehensive

2/ U. S. Dept. of Commerce, Bureau of Corporations. The lumber industry. Part 2: Concentration of timber ownership in important selected regions. 1914. Data for this study bear the data of 1910.

basis for study of concentration in timber land ownership. Another presentation of the situation ten years later was contained in the Capper Report of 1920.^{3/} Material for a portion of the latter study

3/ Timber depletion, lumber prices, lumber exports and concentration of timber ownership. Report on Senate resolution 311. (66th Cong. 2nd sess.) 1920.

A brief but pointed comment concerning the situation on the Pacific slope seventeen years after the Capper report occurs in Mason, D. T., "Present trends in private forest ownership." Jour. Forestry, 35: 105-107. 1937.

was gleaned from the files of the Timber Section of the Bureau of Internal Revenue.^{4/}

4/ Timber depletion, lumber prices, lumber exports and concentration of timber ownership. See especially p. 64.

Because of the returns made to it under the income tax legislation, the Bureau of Internal Revenue of the Treasury Department has been sug-

gested as a source of information for research in forest economics upon a national or regional basis. From a practical standpoint, however, the value of the material collected by the Bureau may easily be overestimated, not only because of the necessity of preserving its confidential nature, but also because the data are not gathered or preserved with an eye to purposes other than taxation.^{5/} The larger corporations

^{5/} Sparhawk, W. N. A survey of research in forest economics. Social Science Research Council Bull. 24. P. 34. 1936.
Interview with R. C. Hall, Director of the Forest Taxation Inquiry, U. S. Forest Service, and formerly valuation engineer of the Income Tax Unit of the Treasury Department.

and some of the large individual owners of timberland make returns, although as a sprinkling of the companies do not report, neither of the categories is absolutely complete. The Forest Industries Schedule calls for information on depletion or sale under provision for the reduction of the tax by the retirement of timber capital. The Forest Service, as a government organization, has been permitted to make restricted use of the Internal Revenue material from time to time.

In addition, the United States Forest Service, through the nationwide forest survey, has accumulated data according to various ownership groups in some regions.^{6/} More detailed research on ownership problems

^{6/} See, e.g., The forest situation in the central pine district, Minnesota. U. S. Dept. Agr., Forest Serv., Lake States Expt. Sta., Economic Notes No. 3. Univ. Farm, St. Paul. 1935.

Andrews, H. J. "The forest survey in the Douglas fir region."
Jour. Forestry, 30: 264-275. 1932.

might be conducted upon completion of the original survey, if funds are provided for continuing the project.

Another Federal agency periodically accumulating statistics on land ownership is the Bureau of the Census. The scope of its collection and publication of information on farm forests in the regular agricultural censuses might be extended. In addition, the value of the census of manufactures might be enhanced by extension of the data on forest industries. One of the projects conducted by the United States Timber Conservation Board, which existed from January 1, 1931, to June 30, 1932, aimed to illuminate the extent and character of timber ownership as well as allied subjects.^{7/} Basic surveys on land utilization, in which land

^{7/} Reed, Franklin W. "The United States Timber Conservation Board: its origin and organization; its purpose and progress." Jour. Forestry, 29: 1202-1205. 1931.

ownership is given proper recognition, have also been made by the Bureau of Agricultural Economics, the Agricultural Experiment Stations, the Federal Emergency Relief Administration, and the Tennessee Valley Authority.^{8/}

^{8/} References to the work of these agencies will be found in Bibliography on land utilization, 1918-36. U.S. Dept. Agr. Misc. Pub. 284. 1938.

Some impetus has been given to the study of land ownership in the past few years by the activities of the National Resources Committee^{9/}

^{9/} See "Forest land resources, requirements, problems, and policy." Part VIII, Supplementary report of the Land Planning Committee to the National Resources Board. Washington. 1935.

and its branches, various regional and State planning bodies, and State departments of conservation or similar agencies. Research by these bodies generally emphasizes land utilization rather than land ownership. An exception to this rule is the work of the Michigan Land Economic Survey. Recognizing that "any plan or program for the utilization of the land must be carried out through the instrumentality of the land owners", the Land Economic Survey in the mid-twenties began collecting data and mapping in detail the land of Michigan counties.^{10/} A re-survey of Menominee County eight years later, in

10/ The bibliography on the Michigan Land Economic Survey is extensive. A few of the more important references are:

Biennial report, the Dept. of Conservation, State of Michigan. Fiscal years 1925-1926. Pp. 298,304.

Schoenmann, L. R. "Land economic survey division." Sixth biennial report, 1931-1932, the Dept. of Conservation, State of Michigan. Pp. 53-67.

"Land inventory for rural planning in Alger county, Michigan." Michigan Acad. Science, Arts, and Letters, Papers. (1931), 16: 329-361. 1932.

"Planned land use." Amer. Assoc. Adv. Sci. Proceedings Land Use Symposium, summer meeting, June 21, 1932. pp. 48-57.

"Description of field methods followed by the Michigan Land and Economic Survey." Amer. Assoc. Soil Survey Workers Bull. 4, vol. 1, pp. 44-52. 1923.

Lovejoy, P. S. "Theory and practice in land classification." Jour. Land and Pub. Utility Econ., 1: 160-175. 1925.

DeVries, Wade. "Correlation of physical and economic factors as shown by the Michigan Land Economic Survey." Ibid., 4: 295-300. 1928.

See also the county maps published by the Survey, especially those relating to farm and forest uses, and property ownership. On the reverse of each map is textual elaboration of the legends, and elementary analysis of the data charted.

1933, illustrated the value in effective planning of a repetitive examination describing the shifts of ownership from one class to another and the comparative condition of the land. The original study covered the whole county, while the re-survey was conducted by a strip sampling of $12\frac{1}{2}$ percent of the area. Intent of ownership^{11/} was obtained from

^{11/} See P. 16.

information derived from the tax rolls and the testimony of the owners and township supervisors. Time and cost of the second study were small in proportion to the original, and the value of the data for planning purposes was considerably enhanced.^{12/}

^{12/} Frank, Bernard. "Periodic land use studies for more effective planning." Jour. Forestry, 32: 425-429. 1934.

For one phase of the sampling of four counties of the Upper Peninsula see "Ownership and use of land determine tax delinquency." Technical Notes No. 86. Lake States Forest Expt. Sta. 1934.

Relation of tax delinquency to land utilization in the upper peninsula of Michigan. (Manuscript in the files of the Lake States For. Expt. Sta.) 1934.

Land studies in Wisconsin have likewise dealt with problems of ownership. Part IV of a report on Lincoln County is devoted to the forestry possibilities of the area, a treatise prepared by W. N.

Sparhawk containing a significant analysis of forest land ownership.^{13/}

^{13/} Hibbard, B. H., Hartman, W. A., and Sparhawk, W. N. Use and taxation of land in Lincoln County, Wisconsin. Univ. of Wisc. Agr. Expt. Sta. Bul. 406. Especially pp. 21-32. 1929.

Wisconsin counties have received attention from land economists,^{14/} while

^{14/} Land economic inventory of northern Wisconsin; Bayfield county. Wisc. Dept. of Agr. and Markets Bull. 100. December, 1929. Especially part III, "The economic survey", by George S. Wehrwein and Guy A. Peterson.

Wehrwein, G. S. "Land ownership, utilization, and taxation in Bayfield County, Wisconsin." Jour. Land and Pub. Utility Econ., 6: 157-169. 1930.

Bordner, John S., Morris, William W., Wood, Lamar M., and Steenis, John H. Land economic inventory of northern Wisconsin; Douglas county. Wisc. Dept. of Agr. and Markets Bull. 146, 1933.

Bordner, John S., Aldrich, H. R., Morris, William W., and Steenis, John H. Land economic inventory of the State of Wisconsin; Juneau county. Wisc. Exec. Council, Div. of Land Econ. Inventory, No. 1. 1934.

Bordner, John S., Morris, William W., and others. Land economic inventory of the State of Wisconsin; Rusk county. Wisc. Exec. Council, Div. of Land Econ. Inventory, No. 2. 1935.

the State as a whole is the subject of a cross-sectional study of the size of landholdings.^{15/} Ownership in relation to land use policy in the

^{15/} Sturlaugson, Jonas. "The size of landholdings in Wisconsin." Jour. Land and Pub. Utility Econ., 3: 308-322. 1927.

same State has been treated in a report of the Governor's Committee on Land Use and Forestry.^{16/}

^{16/} Forest land use in Wisconsin. Madison. 1932.

Minnesotans have also dealt with the subject in the process of formulating state-wide policy,^{17/} and fundamental research on land owner-

17/ Minnesota Committee on Land Utilization. Land utilization in Minnesota; a state program for the cut-over lands. Minneapolis, Univ. of Minn. Press. 1934.

Jesness, O.B., Nowell, R. I., and associates. A program for land use in northern Minnesota; a type study in land utilization. Minneapolis, Univ. of Minn. Press. 1935.

ship has been reported in progress in the State of Washington. ^{18/}

18/ Washington State Planning Council. First biennial report ... from February 23, 1934, to September 30, 1934. Olympia. 1935. See especially "Report of Committee on Land Classification and Use." Pp. 68-70.

R.R. Renne's^{19/} investigations of Montana land problems deal largely

19/ Renne, R.R. Montana land ownership. An analysis of the ownership pattern and its significance in land use planning. Montana State Coll. Agr. Expt. Station Bull. 322. 1936.

Readjusting Montana's agriculture. IV. Land ownership and tenure. Montana State Coll. Agr. Expt. Sta. Bull. 310. 1936.

"Significance of the ownership pattern to land use planning." Jour. of Farm Economics, 17: 423-432. 1935.

"Western land policies and recent ownership trends." Jour. of Land and Public Utility Economics, 12: 33-43. 1936.

with grazing and farming lands, but these studies employ appropriate methods of charting ownership patterns and trends, and indicate the value of such information in ascertaining and correcting the causes of lack of stability and other maladjustments. Two New Hampshire

towns were the object of a survey which was reduced to a system of maps and a card index serviceable for the study of many phases of land ownership.^{20/} Other States in which research has resulted in

^{20/} Walker, C. E., and Hodgkins, P. M. Survey of land holdings in towns of Fremont and Boseawen, N. H. Univ. of N. H. Agr. Expt. Sta. Bull. 264. 1932.

descriptions of ownership patterns and trends, in varying degrees of detail, are Kentucky,^{21/} Georgia,^{22/} and Oregon.^{23/}

^{21/} Craig, R. B. Forestry in the economic life of Knott county, Ky. Ky. Agr. Expt. Sta. Bull. 326. 1932.

Clayton, C. F., and Nicholls, W. D. Land utilization in Laurel county, Ky. U. S. Dept. Agr. Tech. Bull. 289. 1932.

^{22/} Hartman, W. A., and Wooten, H. H. Georgia land use problems. Ga. Expt. Sta. Bull. 191. 1935.

An example of farm and forest ownership problems in a southern state.

^{23/} Selby, H. E. "Land use planning." Western Farm Economics Association Proceedings, 8th Annual Meeting, 8: 75-82. Corvallis, Oregon. 1935.

This review of existing information upon the present status, recent changes, and trends in forest land ownership points to the desirability of further intensive investigation in this field. The need in many quarters lies not only in the interpretation and analysis of existing data, but also in the collection of basic facts. These may perhaps best be obtained by means of a canvass conducted after the manner of a census, although restricted in scope to suit the facilities available and region to be covered. Such a canvass would require a classification of the types of owners. The following grouping is sub-

mitted by way of suggestion; the elimination of some classes and the addition of others might be desirable in the course of specific research in a particular locality.

A. Private:

1. Types of owners according to objectives:

a. Farmers.

1. Owner
2. Tenant

b. Operator who cuts timber for market, according to demand.

c. Wood-using industries.

1. Lumber
2. Paper
3. Furniture
4. Box
5. Other

d. Speculators.

e. Holding not speculative, but merely inactive.

f. Owners interested in recreation.

g. Incidental forest ownership.

1. Mining company
2. Oil company.
3. Others'

2. Types of owners according to organization:

a. Individuals.

b. Partnerships.

c. Corporations.

d. Clubs.

e. Estates.

f. Trusts.

B. Public:

1. Federal Government:

a. National forests.

b. National parks.

c. Unreserved public domain.

d. Wildlife reservations.

e. Other.

2. States:

- a. State forests.
- b. State parks.
- c. State game preserves.
- d. Unadministered State land.
- e. Other.

3. Local Governments:

- a. County or town forests.
- b. County or town parks.
- c. County or town game preserves.
- d. Unadministered county or town land.
- e. Other.

C. Semi-public owners, such as schools, hospitals, churches, water companies, women's clubs, and such organizations as the Society for the Protection of New Hampshire forests.

Inasmuch as it is not the purpose of this report to suggest the detailed methodology to be followed, no attempt is here made to outline a "schedule" for such a census or survey.^{24/} Nevertheless, it is ex-

^{24/} Suggestive blank forms, although not designed for a forest land survey, may be found on pp. 284-285, Vaughan, Lawrence M. Abandoned farm areas in New York. Cornell Univ. Agr. Expt. Sta. Ithaca, N. Y. 1929.

pected that the information to be ascertained would include:

- 1. Classification of the owner.
- 2. Intent or objectives of the owners:
 - a. Intention to keep the land.
 - 1. For timber growing
 - 2. For game preserve
 - 3. For pasture
 - 4. For crops after clearing
 - 5. For some combination of these or other uses

- b. Intention to sell as soon as purchaser can be found at a satisfactory price.
 - c. Intention to hold until he can cut the timber now on it.
3. Tax delinquency.
4. Method of transfer if the tract has changed hands since the last information was gathered:
- a. Sale.
 - b. Foreclosure.
 - c. Inheritance.
 - d. Other methods.
5. Area, by condition of forest:
- a. Saw timber.
 - b. Cordwood.
 - c. Reproduction fair to good.
 - d. Reproduction poor to lacking.
6. Within the territorial limits of the survey such a census would give the facts as to the total amounts of land in each class of ownership, the number of owners in each class, the size of the tracts in each class, and the amount of absentee ownership.

The schedule should be prepared with due regard to the desirability of repeating the census at more or less regular intervals. Such repetition would make possible a comparison of the systematically collected data, and would be essential for the accurate determination of trends.^{25/}

^{25/} Frank, Bernard. "Periodic land use studies for more effective planning." Jour. Forestry, 32: 425-429. 1934. The author suggests that the value of comparisons grows with the length of time which passes between studies. Eight years he believes to be not too short an interval. On the other hand, annual sample censuses "for certain townships, counties, or other area units" have been proposed in order to gain a better understanding of certain agricultural issues.

Benedict, M. R., chairman. The Census of Agriculture. Social Science Research Council Bull. 40. 1937. Pp. 7, 69-70.

Forest school curricula might include census-taking and analysis in this subject as part of class routine, repeated for a restricted area perhaps once during every college generation. This program would be analogous to the field work in demonstration forests already operating in many quarters. In searching for information, county or town records would be the most likely sources, although field surveys might be advisable in some cases.

As in all fields of forest economics the collection, compilation, and analysis of data on forest land ownership will be made according to political, natural, or industrial subdivisions.^{26/} Research on the

^{26/} Clapp, E. H. A national program of forest research. P. 134.

present status, recent changes, and trends in forest ownership would be desirable on a national scale, but may perhaps be conducted more practically by States or minor political subdivisions; by forest regions; by a single industry or groups of industries; or by individual enterprises. For most purposes, some regional or industrial limitation will probably be desirable.

ORIGIN OF PRESENT OWNERSHIP PATTERNS

The origin of present patterns of forest land ownership is particularly pertinent at this time when land planning is receiving widespread attention. As a background for future classifications, zoning, public acquisition, or disposal, the understanding obtained from historical research on past alienation and acquisition of forest lands is of value.

Certain phases of the origins of forest land ownership have been given rather intensive study. In the eighties as an appendix to the report of the first Public Lands Commission, Thomas Donaldson ^{1/}

^{1/} Donaldson, Thomas. The public domain, its history, with statistics, with references to the national domain, colonization, acquirement of territory, the survey, administration and several methods of sale and disposition of the public domain of the United States, with sketch of legislative history of the land states and territories, and references to the land system of the colonies, and also that of several foreign governments. Public land commission. Committee on codification. House Misc. Doc. 45 (47th Cong., 2nd Sess.). 1884.

A later concise summary is Stabler, Herman. "Rise and fall of the public domain." Civil Engin., 2: 541-546. 1932.

traced briefly the disposal of public lands during colonial times and pointed out the lavish disposal of forested areas as well as other lands by the Federal government subsequent to the Revolution. For years the annual reports of the Secretary of the Interior and the Commissioner of the General Land Office contained accounts of depredations upon the timber lands of the United States and urged legislation to improve

resulting conditions.^{2/} More recently the purposes, methods, and

^{2/} Activity was especially great when Carl Schurz was Secretary of Interior. E.g., see reports for 1877, 1878, 1879, 1880.

results of the government's policy in disposing of the land and the means of private acquisition have been treated in the historical treatises of Ise, ^{3/} Cameron,^{4/} and Hibbard,^{5/} and the volume on

^{3/} Ise, John. The United States forest policy. Yale Univ. Press. 1920.

^{4/} Cameron, Jenks. The development of governmental forest control in the United States. Institute for Government Research, Studies in Administration. Johns Hopkins Press. 1928.

^{5/} Hibbard, Benjamin H. A history of the public land policies. Macmillan. New York. 1924.

See also, Hill, Robert Tudor. The public domain and democracy. Columbia Univ. Studies in Hist., Econ., & Publ. Laws 100. New York. 1910. The descriptive sub-title is "A study of social, economic and political problems in the United States in relation to western development."

conservation by Van Hise.^{6/} These books were the result of a growing

^{6/} Van Hise, C. R. Conservation of our natural resources; based on Van Hise's the conservation of natural resources in the United States. Macmillan. New York. 1930.

consciousness of the problems created by the extensive alienation of the public domain in the past.

Early in the present century the fear of timber shortage and of monopoly stimulated studies which were designed to influence policy and legislation, but which also dealt to some extent with the origin of

present holdings. One of the most noteworthy of these was the investigation by the Bureau of Corporations,^{7/} which, however, limited its

7/ U. S. Department of Commerce, Bureau of Corporations. The lumber industry. Part 2: Concentration of timber ownership in important selected regions. 1914.

attention to a few specific regions where concentration of ownership was known to be extensive. Later investigations of the subject included the Capper report of 1920^{8/} and local studies by Austin Cary,^{9/}

8/ Timber depletion, lumber prices, lumber exports and concentration of timber ownership. Report on Senate resolution 311. (66th Cong., 2nd sess.) 1920.

9/ Cary, A. Timber ownership and lumber production in the Douglas fir region. (Manuscript). 1916.
The date 1916 is usually cited for this report, although a "Final Copy" prepared for the printer is dated 1919. Pp. 158-220 in the manuscript appear as "The Cary report on Douglas fir lumber production." West Coast Lumberman, 42: 50-63. 1922.

D. T. Mason,^{10/} and C. Stowell Smith.^{11/}

10/ Mason, D. T. Timber ownership and lumber production in the Inland Empire. Western Pine Mfrs. Assoc. Portland, Oregon. 1920.

11/ Smith, C. Stowell. Timber ownership and lumber production in California. (Manuscript). 1917.

. Timber ownership and lumber production in the southern pine region. (Manuscript). 1918.

The legislation, methods, and areas involved in the sale, gift, reservation, and acquisition of public lands by the Federal Government are reasonably well known. The history of State lands is less complete

but perhaps adequate for present purposes.^{12/} More information,

12/ E.g., Whipple, Gurth. A history of half a century of the management of the natural resources of the Empire State - 1885-1935. Albany. 1935.

however, is needed as to the rapidity and character of changes in the ownership of forest lands after they got into private hands. Perhaps even more essential is knowledge of the reasons for these changes, a field which obviously requires consideration of the objectives of successive owners and of their success or failure in attaining these objectives.

Because of the difficult and detailed nature of the research involved, studies along these lines should probably be limited to representative localities or regions. In each case, research might cover somewhat the following items:

1. Objectives and results of disposal of publicly owned land:

a. Objectives.

1. Revenue
2. Encouragement of settlement and industrial development
3. Permanent improvements
4. Education
5. Bounties
6. Other

b. Results.

- c. Probable reasons for whatever failure in objectives is shown by the results.

2. Successive stages of alienation down to the present owners:

- a. Objectives or purposes in acquiring the land.

1. Supply of raw material for manufacturing plants
2. Speculation
3. Practice of forestry

b. Results.

c. Probable reasons for whatever failure in objectives is shown by the results.

d. Rate of turnover from one owner to another.

3. Objectives of the public in acquiring forest lands:

a. Watershed protection.

b. Timber production.

c. Conservation of other forest values.

d. Involuntary, by the tax delinquency route.

State archives and the files of the General Land Office ^{13/} contain

^{13/} Gates, Paul Wallace. "Homestead law in an incongruous land system." American Historical Review, 41: 652-681. 1936.

Meany, E. S., Jr. History of the lumber industry in the Pacific Northwest to 1917. (Manuscript). 1935.

Wood, Richard. A history of lumbering in Maine 1820-1861. Univ. of Maine Studies, Second Series, 33. The Maine Bulletin, vol. 37, no. 7. 1936.

Miss Agnes Larson is currently surveying materials in the General Land Office on the history of timberland ownership in Minnesota.

original records of much historical value. In the General Land Office, especially, can be found information as to the methods of alienation of the public domain, and to a less extent as to the intent of those obtaining timbered land. This information is available in the Tract Books, original Entry Books, the files of the Timber Division, and the voluminous

correspondence of the field agents. When present holdings have passed through one or more intermediate stages of ownership since leaving the public domain, local governmental records must be searched for consecutive passage of titles. To a limited extent the Bureau of Corporations employed this method.

The determination of objectives in the private acquisition of timberlands and of the results of such acquisition, is more difficult. Pertinent letters and records of individuals and corporations are scarce, are not always available, and often are not particularly informative. The nature of the owner (be he railroad agent, lumber operator, or real estate speculator, for example) may give fairly accurate guidance as to his objectives and a basis for judgment concerning the results of his procurement.^{14/} Fear of timber shortage and threat of widespread

^{14/} Frank, Bernard. "Periodic land use studies for more effective planning." Jour. Forestry, 32: 425-429. 1934.

Federal reservation may well have influenced extensive programs of purchase or other acquisition in certain regions, with resultant over-capitalization, overproduction, and other evils. For example, importance has been claimed for these factors in explanation of the present condition of the Pacific Northwest lumber industry. Other owners received their land by inheritance, and only after this involuntary acquisition were faced with the necessity of making plans for its retention or disposal.

Although the objectives of the owner in acquiring timberland and his satisfaction or dissatisfaction with the results, are elusive and

difficult to ascertain, they are worthy of study as recognized considerations of the first importance in forestry.^{15/} They are dealt with more

^{15/} Chapman, H. H. Forest management, p. 75. J. B. Lyon Co., Albany, N. Y. 1931.

Graves, Henry S. "Cooperative effort in forestry." Jour. Forestry, 35: 639-644. 1937.

fully in the sections on "Stability of Ownership" and "Social Aspects of Ownership".

STABILITY OF VARIOUS CLASSES OF FOREST LAND OWNERSHIP

It is generally recognized that reasonable continuity of policy is essential for the practice of forestry. There is also a common assumption, to which this survey adheres, that forest management under private ownership will continue to be largely directed to the end of commercial profit, and the attainment of other objectives is dealt with elsewhere in the report. Timber growing is a permanent enterprise, whether on long or short rotations, requires that the forest be organized and administered under a definite plan of management, any material departure from which is likely to throw the entire enterprise out of gear. For example, inadequate protection, overcutting, or failure to obtain satisfactory reproduction may all have consequences which are serious even though they may not be felt for several decades in the concrete form of decreased returns to the owner and social insecurity for the community.

Stability of ownership, under present conditions at least, appears to be a prerequisite to stability of policy. With our present unorganized forests, for the most part poorly stocked, often with inferior species, and with unsatisfactory distribution of age classes, considerable time is nearly always necessary to build them up and put them on a sustained-yield basis. Obviously this result is more likely to be achieved with continuing rather than with changing ownership.

Moreover, even in well-managed forests continuity of ownership is likely to be a real advantage. Experience proves conclusively that

in any activity new owners, new directors, and new managers often bring with them new ideas and new policies. This has been and still is particularly true with forest enterprise.

Far-sighted plans of the sort necessary for a rational American forest policy are likely to be developed, administered, and maintained only with a more stable ownership than has so far prevailed.^{1/} Today,

^{1/} Show, S. B. "The probable future distribution of forest land ownership." A national plan for American forestry, pp. 1253-1302. Senate Doc. 12 (73rd Cong., 1st Sess.) 1933.

Munger, Thornton T. "The breakdown of private forest land ownership." Ibid., pp. 869-890.

Chapman, C. S. "Industrial problems of forest practice in northwest." Jour. Forestry, 36: 188-196. 1938.

Goodman, R. B. "Conditions confronting the private timberland owners in the principal forest regions." Ibid., 34: 221-225. 1936.

when we are in the difficult process of transition from liquidation to production, stability of ownership is a prime requisite to stability of policy. If the day ever comes when sustained-yield forest management is the rule rather than the exception, stability of ownership will be less important than at present, and the very fact that plans look so far into the future should tend to encourage adherence to them.

It is, therefore, important that stability and instability of forest land ownership and the factors contributing to them be given adequate attention by forest economists and other social scientists. Some of the lines of research below are so interrelated that adequate treatment will not permit total separation; others may be studied more

independently.

1. Extent of stability by the various classes of owners:

- a. Durations of ownership by classes in different regions.
- b. Effect which stability and instability have had on actual management of the forests.

2. Factors affecting stability:

- a. Objectives or purposes of the owner.
- b. Efficiency of operation and organization.
- c. Legal provisions regarding inheritance.

- 1. Taxation
- 2. Distribution of estate
- 3. Entail

- d. Property taxation.
- e. Financing, including credit facilities.
- f. Demand for timber and other forest products.

- 1. Competition of other materials
- 2. Cessation of agricultural expansion
- 3. Values of stumpage and timber products

- g. Risk of loss from fire, theft and trespass, or natural agencies, involving

- 1. Inadequate protection
- 2. High cost of protection
- 3. Lack of insurance facilities

- h. Migration of owners.

While some of these topics have received considerable attention by investigators, with a few exceptions they have not been linked in research with ownership problems. Particularly noticeable is the lack of any adequate information as to the frequency of changes in ownership in different parts of the country and under different forest conditions. Is ownership more stable in the Northeast or in the Northwest? In good land or in poor land? In boom times or in hard times? In farm woodlots

or in industrial holdings? With individuals or with corporations? Every one probably has his own answers to such questions as these, but if dependable evidence in support of them exists it does not seem to have found its way into print.

Yet information of this sort is basic to an understanding of how serious the problem of turn-over in forest ownership really is, and of where and under what conditions it is most acute. Similarly, it is important to know whether existing evidence supports the thesis that stable ownership and improved management go hand in hand. Are areas which have been in the same ownership over a long period actually better handled than those where changes of ownership have been frequent? Can cases be cited where attempts at improved forest practice have clearly been set back by a change in ownership?

Studies along these lines can be made to advantage locally in all parts of the country. Case studies of the duration of possession of tracts of forest land in a given locality by different classes of owners would yield valuable data concerning the extent of stability or instability of ownership in that region. The facts obtained would provoke analysis of the frequency of turnover in the various classes, and would provide material for correlation with other factors, such as forest type, quality of land, proximity to large private or public holdings, or other conditions which might influence stability at a particular time and place.

Of the many factors affecting stability, the intent of ownership is recognized as especially important. What the party acquiring a

property intends to do with it has a direct bearing on the length of time it will be held under one management and how it will be managed. At one extreme the speculative owner is interested only in disposing of timber or land or both when he can obtain the highest excess of unearned increment over carrying charges. On the other hand, the progressive pulp and paper company invests in southern pine as an avowedly permanent, managed forest which will long outlive present officials on a sustained-yield basis. National forests are established for the purpose of meeting the needs of its citizens as long as the country exists. Between these extremes is room for wide variation in the objectives of the owner. The difficulty of ascertaining intent of ownership has been dealt with elsewhere,^{2/} but must be overcome by the

2/ Supra, p. 20.

development of appropriate methodology because of the outstanding importance of this factor.

In broad terms, an owner's decision as to whether to liquidate his holdings, which almost invariably results in instability of ownership, or to go in for continuous forest production, which holds out at least a reasonable hope for stability, depends on which course he believes will yield him the larger net profit. Among the items of major importance in this connection is that of efficiency in operation. Operators have, of course, always sought to get logs out, transported to the mill, and manufactured at minimum cost, but it is only recently and in a wholly

inadequate way that scientific studies have been undertaken of the returns from and costs of handling logs of different sizes, the relative efficiency of manual labor and of different types of machinery, the layout of camps, roads, and logging railroads, and similar operating problems. While investigations of this sort have their engineering as well as economic aspects, they have a significant bearing on stability of ownership because of their influence on the return to be expected and the consequent interest of the owner in remaining in the business. Case studies along these lines of specific operations in all parts of the country could well be undertaken by private as well as public agencies.

Closely related to this field of investigation are the financial advantages and disadvantages of sustained-yield management. There has been much theoretical argument, bolstered by the use of hypothetical figures, as to whether the organization of the forest so that the same amount of timber can be cut year after year results in a larger or smaller net return. Usually the calculator has little difficulty in selecting illustrations that will support his preconceived views. We greatly need exact data for specific properties as to just what the increased costs of sustained yield really are and the extent of the savings effected by this type of management in such items as interest and taxes on the capital investment in land, timber, and equipment; in the cost of borrowed money; in the heavy depletion charge necessitated by liquidation; and in charges for maintenance and depreciation on the surplus equipment and manufacturing facilities which are so frequent

an accompaniment of enterprises organized to cut out and get out as quickly as possible.^{3/} If such studies show sustained yield to be fi-

3/ For a method of approaching the problem of income from farm woodland, see Garey, L. F. "Project l-b. Non-farm income." Research in agricultural income. Scope and Method Series in Agricultural Economics and Rural Sociology. Social Science Research Council Bull. 6. New York. 1933. Pp. 111-114.

nancially advantageous, they will help materially in promoting stability of ownership; while if they show the contrary, they will raise serious doubts as to likelihood that sustained-yield management will be practiced at all generally by private owners. They are, therefore, of basic importance not only in this connection but also as throwing light on the broader question of policy with respect to public versus private ownership.

Another problem best approached by case studies is the effect upon ownership of legal provisions regarding inheritance. Increasingly high inheritance taxes and laws common in many states for the compulsory division of the property of a person dying intestate may be disadvantageous from the forestry standpoint in two ways. First, they may force the wrecking of the forest to pay taxes or to give each heir his share of the estate; and second, they may force the division of the forest into units that are too small to be economically adopted to sustained-yield management. Studies of particular properties will determine the extent to which these hindrances to stability of policy and effectiveness of management exist under present legislation.

If the situation is found to be serious, this will raise the

important question of policy as to whether Federal and State legislation relating to inheritance should not be modified to meet the peculiar necessities of forest land ownership; and if so, how. The entire subject affords an excellent opportunity for a coordinated economic and legal approach.

Entail, by keeping forest and other properties in the same family from one generation to another, is reported to have had beneficial results in other countries in stabilizing their management. Little is known concerning the real effectiveness of this method of keeping an estate intact. Hence there is a place for study of the system as practiced in Europe. If entailed forests were really found to be superior to others, this would be an argument for promoting this practice in the United States. Entail, however, seems so thoroughly disapproved in principle in this country, that less objectionable legal equivalents will almost certainly have to be sought to attain the desired end.^{4/}

^{4/} Hudson, Manley O. "Current land law reform in England." Harvard Law Review, 34: 342-343. 1921. Note 7. Dr. J. F. Jamison attributed the unpopularity "in the early years of the nation to the social revolution which accompanied the secession of the colonies." Early in the 19th century commonwealths by statute and declaration pronounced entail as inconsistent with American democracy.

For many years property taxation has been acknowledged as a powerful deterrent to stability of forest land ownership and hence as a definite impediment to general adoption of scientific forestry.

Opinions differ as to whether or not the property tax would be a serious burden if the forests of the country generally were managed on a sustained-yield basis. However that may be, the fact remains that with the forests in their present disorganized condition the property tax has all too frequently stimulated the premature cutting of merchantable timber and the abandonment of cut-over lands.

As a consequence, the difficulties of bringing about sustained-yield management have increased, and a considerable "new public domain" has sprung into existence through reversion of tax-delinquent lands to the county or the State. These effects of public finance policy and tax administration, bearing as they do with strong emphasis upon forested and cut-over land, have pointed to the need of clarifying research.

In recognition of the importance of the taxation problem, the Forest Taxation Inquiry was established by the Forest Service in 1926. Its monumental report,^{5/} published in 1935, supersedes most previous

5/ Fairchild, F. R., and associates. Forest taxation in the United States. U. S. Dept. Agr. Misc. Pub. 218. 1935.

For a simplified statement of the tax problem and the findings of the Inquiry, see:

Hall, R. Clifford. The forest-tax problem and its solution summarized. U. S. Dept. Agr. Circular 358. 1935.

Perhaps productive of further analysis on taxation and other ownership problems are the sources which Dr. Fairchild cites on pp. 255-259, concerning the testimony of owners as to the effect of the property tax on the holding of old-growth timber. These sources are:

Fairchild, F. R. "Taxation of timber lands." National conservation report, 2: 581-632. 1909.

Statements of the Hearing of the Select Committee on Reforestation of the United States Senate in 1923. (67th Cong., 4th sess., hearing pursuant to S. Res. 398.)

Replies to questionnaires of the United States Timber Conservation Board in 1931 and 1932.

studies and furnishes the foundation for future research on the subject. The comprehensive bibliography adds greatly to its value for reference and research purposes. Research and educational work are being continued in order to study new problems as they arise, and especially in order to assist States in improving their forest tax systems. County organization in connection with taxation has been studied in the Pacific Northwest.^{6/} Other problems include develop-

^{6/} DeVries, Wade. "Tax relief through reorganization of local government." Forest Research Notes 23. U. S. Forest Serv. Pacific Northwest Forest and Range Expt. Sta. Portland, Ore. 1937. (Mimeographed.)

ments in the property tax field and new methods of taxation.^{7/}

^{7/} Hall, R. Clifford. "Frozen assessments and the prepaid yield tax." Jour. Forestry, 36: 56-62. 1938.

Examples of additional research items which did not appear in the bibliography of the Inquiry report are several State investigations^{8/}

^{8/} Craig, R. B., and Hall, O. J. Tax delinquency of forest land in Arkansas 1932-1933. Arkansas Agr. Expt. Sta. Bull. 340. 1937.

Hopkins, Francis W. An historical sketch of local finance in Connecticut until 1930 with special reference to forest resources, forest industries and the taxation of forests. Ann Arbor. 1936.

Ramsdell, W. F. Township government and the exploitation of timber and wild land resources in northern Michigan. Detroit. 1933. (Michigan local government series.)

Herbert, P. A. "The effect of the Michigan 15 mill tax limitation on forest property and communities." Jour. Forestry, 34: 4-9. 1936.

Wilson, S. A. Facts bearing upon instability of forest land ownership in western Oregon. (Also for western Washington.) (Multi-graphed.) Pacific Northwest Forest Expt. Sta. 1934.

Ziegler, Edwin A. Forest taxation in Pennsylvania. Harrisburg. Pennsylvania Dept. of Forests and Waters Bull. 55. 1936.

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and a few of more general nature.

9/ Wilson, S. A. "Forest taxation and private ownership." Wash. Purchasing Agent and Mfr., 11: 8-9, 49-51. May 1936.

Wohlenberg, E.T.F. "Carrying capacity of timber operations for sustained yield." Jour. Forestry, 33: 509-512. 1935.

It is important that the work of the Forest Taxation Inquiry be supplemented by regional, State, and local studies along the same lines, particularly with respect to local situations and current developments. Not only is the property tax in itself often a real burden, but the psychology of fear and uncertainty which it generates is also a principal deterrent to stability of policy and ownership.

The part which the lack of credit in adequate amounts and at reasonable rates of interest plays in retarding the practice of forestry has received the consideration of foresters both within and outside the ranks of private business for many years. From the point of view of private investment, forestry faces the difficulty of carrying loans for the more or less lengthy period necessary to convert the present ,

unorganized forests from a deferred-yield to a pay-as-you-go basis. The once-popular timber bonds were used for liquidation rather than for timber production, and their general use for the latter purpose seems unlikely. Little study of the timber bond system has been made,^{10/} although unpublished material brought together early

10/ McGrath, Thomas S. Timber bonds. Craig Wayne Co. Chicago. 1911.

Braniff, E.A. "Timber bonds." Jour. Forestry, 7: 58-79. 1912.

Rollins, M. "Pitfalls of timber bond issues." Ibid., 12: 548-558. 1914.

in the present decade by the Timber Conservation Board may be found in the files of the Department of Commerce.

With the advent of increased Federal facilities for the issuance of credit to those engaged in agricultural pursuits, the Forest Service and the Farm Credit Administration have surveyed like methods of assuring a proper forest crop, and preliminary reports on the subject have been prepared.^{11/} Aside from this work there has been little actual

11/ Kirkland, Burt P. "Continuous forest production of privately owned timberlands as a solution of the economic difficulties of the lumber industry." Jour. Forestry, 15: 15-64. 1917.

"The organization of finance in forest industry."
Ibid., 17: 236-244. 1919.

"Federal aid in organizing forest credit facilities." A national plan for American forestry, pp. 1125-1134.

"A forest credit system." American Forests, 40: 203-204, 234. 1934.

The establishment of forest credit institutions adequate to promote effective uses of forest land and rural industrial balance. (Manuscript.) January 10, 1935.

research upon the problem of forest credits.^{12/}

12/ See Herbert, P.A. "Forest lands as investments for insurance companies." Jour. Forestry, 30: 1004-1007. 1932.

Stoddard, Charles H. Jr. "The effect of recent economic trends and research on the financial aspects of forest investments." Ibid., 35: 584-586. 1937.

Hirst, Edgar C. "A savings bank investor looks at forestry." Ibid., 36: 748-754. 1938.

The credit problem, particularly for the small owner, may be partly solved through cooperative association. Such voluntary groups may deal solely with the marketing of logs, or they may also be concerned with the conversion and distribution of forest products and development and management of the forest including construction of improvements, planting, cultural operations or other activities. Formation of the cooperative might be a spontaneous community development, or it could conceivably be initiated in whole or in part by public aid, wherein the required credit would come not from pooling the resources of the parties involved, but from the public funds through some constituted authority.^{13/} The credit aspects of the cooperative

13/ For an example of a cooperative aided by Federal credit, see:

Behre, C. Edward, and Lockard, C. R. Centralized management and utilization adapted to farm woodlands in the northeast. Charles Lathrop Pack Forestry Foundation and the New York State Coll. of Forestry. 1937.

in relation to forest enterprises are worthy of intensive investigation.

The provision of reasonable credit facilities from both public

and private sources as a means of financing forest enterprise in the interests of stability of ownership needs further exploration. As a basis of understanding the present problem, further research is desirable into the apparent failure of past attempts to employ privately supplied capital for timber growing. This problem is closely associated with many others, as for example, taxation and the fear that long-time investment in timber will be unprofitable because of a decreased future demand for forest products and hence for the basic resource itself.

This fear is frequently advanced by forest owners as one of the chief reasons why they are not interested in going into timber production as a permanent business. Highly subjective as this attitude is, there are many facts that furnish a substantial basis for it. The steady decline in per capita consumption of wood products, the general promotion and increased use of wood substitutes,^{14/} the

^{14/} Winslow, Carlile P. "Enlarging the consumption of forest products." A national plan for American forestry, pp. 1355-1394.

Thelen, Rolf. Substitution of other materials for wood. U. S. Dept. Agr. Report 117. 1917.

cessation of agricultural expansion, the slowing down of industry, the failure of stumpage and lumber prices to maintain their previous advances, and other factors all tend to raise doubts as to the future and to discourage the owner from embarking on a long-term venture such as forestry necessarily is.

None of these factors has received the thoroughgoing study that it deserves. For example, the trend of the normal demand, technically known as the "requirements" for forest products, has received considerable attention by public officials from time to time,^{15/} but their conclusions are at best approximate and need

15/ Hallauer, Frank J. "Our national timber requirements." A national plan for American forestry, pp. 245-278.

constant revision. Information is collected currently as to prices for stumpage, logs, and lumber,^{16/} but this needs expansion and

16/ Steer, Henry B. Stumpage prices of privately owned timber in the United States. U. S. Dept. Agr. Tech. Bull. 626. 1938.

Stumpage and log prices for the calendar year. U. S. Dept. Agr. Statistical Bull. 66. Published annually since 1928.

correlation with costs of production, together with analysis of probable future trends. Particularly important is fundamental research in the many complex factors underlying these trends, and an understanding of their effect on the attitude of owners toward timber growing as a continuing enterprise.

Risk of loss of mature or growing timber is an admitted threat to the probable receipt of reasonable profits from forestry and therefore to stability of ownership. Damage by storms, insects, and diseases has received scientific attention toward preventive and remedial measures, but little thought concerning its effect upon owner-

ship.^{17/} Losses from these sources, and particularly from fire, are,

^{17/} For a view of the protection problem as a whole, see the textbook by Hawley, Ralph C. Forest protection. New York. John Wiley & Sons, Inc. 1937.

however, so extensive and constitute such a serious threat to continuous ownership of an affected area, that their importance should be stressed. In certain regions admirable strides have been made by private, semi-public, and public agencies in the protection of forests against fires; but alleviation of this risk involves not only preventive measures, but also the assurance of indemnity if loss should occur in spite of protection. On this score the increasing dependability of modern fire protection should prove an aid toward practical forest fire insurance, and therefore toward stability of ownership.

Forest fire insurance has been the subject of wide discussion and some research among American foresters for many years,^{18/} and

^{18/} Sparhawk, W. N., Bruce, Donald, and Kirkland, Burt P. "Report of sub-committee on forest leases, forest loans, and forest insurance." Jour. Forestry, 18: 260-274. 1920.

Sparhawk, W. N. "Suggestions for rating risks in forest insurance." Ibid., 18: 701-709. 1920.

Herbert, P. A. "The principles of forest insurance." Ibid., 22: 513-517. 1924.

Hult, G. W., translator. "Valuation of forest property in writing insurance." Ibid., 22: 793-795. 1924.

"Report of Committee on Forest Fire Insurance of the Commercial Forestry Conference. Chicago, Nov. 16, 1927." Ibid., 26: 76-87. 1928.

has attracted the earnest attention of at least one company engaged in writing the business.^{19/} Possible applicability of forest fire insurance

19/ Brown, W. R. "Standing timber insurance." Ibid., 24: 243-249. 1926.

_____ "Forest fire actuary." Ibid., 26: 88-90. 1928.

See also, Hawley, Ralph C. Forest protection. 1937. P. 242.

to certain areas, particularly Michigan and Massachusetts, has been studied.^{20/} For the past several years the Forest Service has been

20/ Herbert, P. A. Forest insurance and its application in Michigan. Mich. State Coll. Agr. Expt. Sta. Spec. Bull. 179. 1928.

Averill, C. C., and Frost, L. M. Some factors underlying forest fire insurance in Massachusetts. Harvard Forest Bull. 17. 1933. (Six representative properties.)

investigating the problem, with special reference to the Pacific Slope, the Northeastern States, and the naval stores region of the South.^{21/}

21/ Shepard, H. B. Forest fire insurance in the Pacific Coast states. U. S. Dept. Agr. Tech. Bull. 551. 1937.

_____ Forest fire insurance in the northeastern states. U. S. Dept. Agr. Tech. Bull. 651. 1939.

_____ Study of forest survey data for indication of probability of loss through fire in turpentine operations. (Manuscript in U. S. For. Serv. Research files.) March 24, 1935.

Liefeld, T. A. Fire damage in Florida and Georgia turpentine operations. (Manuscript in U. S. For. Serv. Research files.) May 31, 1935.

Research in forest fire insurance in these regions has now reached the stage where application of the results in the actual writing of

insurance is of first importance. Since conditions vary so widely in different parts of the country, however, studies similar to those already made are needed in other regions, as well as amplification and follow-up work in those already covered.

The migration of owners from one section of the country to another, once much more prevalent than today, may be treated historically or from a study of such cases as may be noted at the present time. Research on this topic may include the effects of migration upon the stability of the resident population and communities, or it may be restricted to the effects upon ownership itself and the management of the forest. Among the results of the migration of owners may be found greater concentration of ownership in the hands of remaining owners, or a more rapid reversion to public ownership. Subjects of concern are the land-disposal policies of migratory lumber companies, especially of their cut-over lands, and the effects on forest use before and after disposal. The transfer of operations by a commercial owner may not necessarily result in change of title, and the resultant non-resident ownership may have important consequences in management policies and stability of tenure.

Stimulation of intensive studies upon these suggested lines of research will be of real value in the interests of forestry at large, and particularly toward a better understanding of one of the essentials of forestry practice, the stability of forest land ownership.

SIZE OF HOLDINGS

The efficient operation of a forestry enterprise is facilitated by a reasonably compact body of land, accessible to existing or prospective means of transportation, with an adequate volume of timber and a suitable distribution of age classes, and susceptible of coordinated management. In the blocking out of such a property, the element of size is an important factor. The owner who has acquired his forest land blindly in this respect, although giving ample thought to other matters, may find that his tract is too large or too small for the efficient consummation of his objectives. The consideration of size is of importance not only in private ^{1/}but also in public ownership; not only where

^{1/} Kirkland, Burt P. "Status and opportunities of private forestry." A national plan for American forestry, pp. 891-984.

financial profit is paramount, but also where efficiency of administration and management is required in attaining intangible benefits from erosion and flood control, watershed protection, wildlife conservation, and recreation.

In the determination of the approximate unit, most satisfactory economically under different types of ownership, the following lines of research are suggested:

1. Variation in the efficient size of unit according to objectives of the owner:
 - a. Profit from the forest alone.
 1. On a liquidation basis
 2. On a sustained-yield basis

b. Partial dependence on the forest for income:

1. Farm woodland
2. Forests operated as adjuncts to other enterprises such as mining

c. Non-profit objectives.

1. Erosion and flood control
2. Watershed protection
3. Wildlife conservation
4. Recreation
5. Amelioration of climate

2. Relation between size and costs and returns.

3. Methods of developing units of size suitable for effective management:

a. Expansion and consolidation of holdings.

1. All public
2. All private
3. Combined public and private

b. Associations of owners.

c. Cooperative management.

d. Control without ownership, as by contracts or leases.

e. Reduction of large holdings.

There is opportunity for widespread research upon the subject of the economic size of forest holdings in the United States. This is a problem for case study, inasmuch as each tract of forest land differs from every other in such fundamentals as type and quality of forest cover, stocking, soil, topography, and availability to transportation facilities and markets. Furthermore, even though two tracts may be quite similar in these physical conditions, the objectives of the respective owners may be so different that the economic size of each

would vary greatly. Thus, an examination of objectives must be a common approach to research on the problem of size.

For the most part, studies in forest economics have dealt with the problems of commercial forests ^{2/} and have been concerned largely

^{2/} Forest research in the United States. Lake States Forest Expt. Sta. in cooperation with Committee on Forestry, Div. of Biology and Agriculture, National Research Council. (Mimeographed.) Nat. Research Council, Wash., D. C. 1938. Pp. 53, 120-123.

with the customary speculative aspect of ownership and the liquidation basis of operation. The Bureau of Corporations report, which dealt to a considerable extent with size, was written with a view to the contemporary formulation of public policy. At a time when public officials and the people at large were trying to winnow the bad trusts from the good, the owners of timberland were under the suspicion of trying to create a monopoly embracing forest land and the industries dependent upon the forest. Students of the subject consequently concerned themselves less with the effect of large holdings upon sustained management than with the current and future price of forest products for the American consumer.^{3/}

^{3/} Compton, Wilson. The organization of the lumber industry.

Sturlaugson, Jonas. "The size of landholdings in Wisconsin." Jour. Land and Pub. Utility Econ., 3: 308-322. 1927.

The large holdings described in these reports were for the most part speculative, and in the normal course of events would be liquidated

with no thought of continuous yield. Generally speaking, under the liquidation method the only limits to the size of a forest property would be those set by the financial condition of the owner, the availability of timber suitable for operation, and the amount of timber possible to harvest profitably before carrying charges exceeded anticipated returns.

The deliberate practice of sustained yield in forest economy is a relatively new venture in the United States, although there are many examples which might be cited in private forestry and numerous instances in public management, notably the national forests. Where the object of ownership is the operation of the forest land in such a manner as to realize an adequate net profit and at the same time to maintain the forest in continuous production, the economic size would be similar for both public and private holdings in the same physical status.

In regions where liquidation and sustained-yield enterprises exist side by side, there is an opportunity for comparison of the relative effectiveness of different sizes by actual study of both types under similar conditions. Such investigation would be of especial value in correlation with other factors such as the condition of the forest after cutting and the net income which was derived. Even where such comparative studies are not feasible, local examinations are desirable of both sustained-yield and liquidation operations to determine the degree of their efficiency in particular regions with respect to the areas involved.

Often the ownership of forest land is incidental to other land

use. Of major importance in this type of ownership are farm woodlands, widely scattered in every forest region throughout the country. Like the forester, the farmer is interested in producing crops, although his chief concern is for crops other than those of the forest.^{4/} This,

4/ Kirkland, Burt P. "Status and opportunities of private forestry." A national plan for American forestry. P. 900.

Chapman, H. H. Forest management. J. B. Lyon Company. Albany, New York. 1931. Pp. 151-153.

combined with the fact that the farm forest is usually too small to permit technical supervision other than that furnished by advice of public agencies, frequently contributes to inefficiency of management. One aspect of this inefficiency may be the improper size of the forest holding. Research, such as is being carried on in some quarters,^{5/}

5/ Annual report of the Lake States Forest Experiment Station, 1937. U. S. For. Serv., Lake States For. Expt. Sta. March 1938.

upon the problem of management of farm woodlots, may be so conducted by the case study method as to produce information on the size of woodland a farmer can economically handle under specific local conditions. From another point of view, involving rural sociology, the appropriate income of the farm family might be established, and then the size of forest holding best adapted to help meet that income could be determined. The Agricultural Experiment Stations could help in solution of these problems.

Likewise, individual studies should be made to ascertain the proper size of holdings which are operated as adjuncts to such enterprises as mining, grazing, and recreation. Where the timber product is considered a minor factor in the income of such undertakings, research may prove a boon in pointing out the areal limits within which forest ownership is an asset and above or below which it becomes a liability.

Assuming that there will be little private forestry where adequate net profit cannot be gained, there are large areas where management for certain public benefits is essential and where public ownership will largely hold the field. Optimum size of holdings in these cases is not determined by financial return, but rather by the criteria of economical administration and attainment of the objective in view. Research upon this subject must also be according to local or regional conditions.

Study of costs and returns is still in its infancy in forest research. The Forest Service has long been collecting material on this subject, occasional references are found in many of its publications, and some specific cases have been described.^{6/} General treatment may be

^{6/} Kirkland, Burt P. Financial possibilities of commercial forestry in the southern pine region. (Manuscript.) 1938. U.S. Forest Service.

Sparhawk, W. N. A survey of research in forest economics. Social Science Research Council Bull. 24. 1936. Pp. 13-14.

found in the Copeland Report,^{7/} yet practical application to the question

^{7/} Kotok, E.I., Kelly, Evan W., Evans, E.F., and Kirkland, Burt P.
"Ownership responsibilities, costs, and returns." A national
plan for American forestry, pp. 1303-1328.

of size requires analysis of individual operations. Of great immediate concern throughout the country is the problem of relating the size of forest holdings to the facilities of conversion. In each forest region there is need of study to determine the area of forest necessary to feed a particular plant or plants of given capacity, particularly with reference to permanent operation. Ideally the converting equipment and the area of forest supplying raw material should be adjusted so as to obtain the maximum efficiency from both.

Once decision is reached as to the appropriate size of forest for effective management in a local situation, research may then be directed to ascertaining the means of developing a unit of that size and with a proper distribution of age classes. These means may involve the reduction, expansion, or consolidation of present holdings.^{8/}

^{8/} See, for example, MacKaye, B. Employment and natural resources.
U.S. Dept. Labor Off, Sec. 1919.

Greeley, W.B. "Forest management on Federal lands." Jour. Forestry,
25: 223-235. 1925.

Consolidation may not materially increase the total size of a unit, but merely join fragments into a compact tract more easily administered. For example, private and public holdings broken into the inevitable

checkerboard pattern on railroad grant lands of the West, may be re-adjusted by exchange so that the whole property of each owner will be assembled in contiguity. Where regional economy depends upon both privately and publicly owned forests, some plan may be devised for joining these into a single operating unit. The cooperation^{9/} between

^{9/} This type of cooperation differs from that treated below, dealing with concerted management of small private holdings such as farm woodlots.

public agencies and private owners in the future management of their resources has been a topic of discussion and research for some years.^{10/}

^{10/} Mason, David T. "Sustained yield and American forest problems." Jour. Forestry, 25: 625-658. 1927.

_____ and Bruce, Donald. Sustained yield forest management as a solution to American forest conservation problems. Portland, Oregon. 1931.

Cooperative forest study of the Grays Harbor area. Published by Western Forestry and Conservation Association with assistance of Charles Lathrop Pack. Portland, Oregon. 1929.

Sterling, E. A. "Some business aspects of forestry." Jour. Forestry, 35: 728-731. 1937.

Billings, C. L. "Integrating private and public lands for sustained yield." Ibid., 35: 134-137. 1937.

Tinker, Earle W. "Integrating private and public lands for sustained yield." Ibid., 35: 137-140. 1937.

Annual report of the Lake States Forest Experiment Station, 1937.
U. S. For. Serv., Lake States For. Expt. Sta. March 1938.

Thus far, practical exigencies and public policy have prevented execution of such plans, and further investigation into their feasibility should

be fruitful.

Study is also desirable of the possibility of blocking out a tract of timber sufficiently large for operation through the association of owners of small tracts. Closely allied to this method is cooperative management, wherein individual owners join together for the best practice of sustained-yield forestry. Although such a program is now in operation in New York State,^{11/} the applicability of similar plans to other sections

^{11/} Behre, C. Edward, and Lockard, C. R. Centralized management and utilization adapted to farm woodlands in the northeast. Charles Lathrop Paek Forestry Foundation and the New York State Coll. of Forestry. 1937.

of the country may well be the subject of research. Both methods of linking tracts for efficient management would seem particularly suitable in the handling of farm woodlands.

Seldom used in this country but deserving of consideration as a means of placing considerable areas under unified management, is control without ownership, but which gives to the administrator effective legal rights similar to ownership. The usefulness of the lease and other forms of contract in building adequate foundation for a forest enterprise is worthy of study.

Efficiency of management may not always call for the building up of extensive holdings. Smaller units may often be more efficiently managed than large, except where holdings of greater size permit the employment of trained technicians and managers. Over-sized tracts may become not only unwieldy, but also uneconomical. Operation over too

large an area may yield more low-grade products than can be profitably marketed owing to cost of long-distance transportation or the condition of the export market, whereas intensive use of small areas close to consumers means the utilization of all the forest increment. Research in individual cases is necessary to determine whether the forests, public as well as private, are too large or too small for proper management, and what reduction or expansion in size is necessary to provide an area commensurate with the requirements of good forestry.

Investigations of the sizes of forest properties in various ownerships, made according to individual cases, will go far in contributing to the stability of ownership and the success of forestry principles in general.

SEPARATE VERSUS COMBINED OWNERSHIP OF TIMBERLAND AND
MANUFACTURING PLANT

The past generation or two in America has come quite generally to believe that big business means profitable business, and that the deeper a firm stretches its roots into all phases of its enterprise, from control of raw materials to distribution of the finished product to the consumer, the more likely will be that firm's success. Although integration in the forest products industries is not a recent phenomenon, the most striking examples have developed since the turn of the century.^{1/}

^{1/} "I: Bunyan in broadcloth: the house of Weyerhaeuser." Fortune, 9: 63-65, 170, 173-174, 176, 180, 182. 1934.

"III: Dollars from wood." Ibid., 69-73, 155-158, 163-164, 167-168, 170.

There is a question, however, as to whether separate or combined ownership of timberland and the means of conversion is more advantageous in the long run. The query is widely recognized as important, and has been answered in individual cases to the satisfaction of the parties involved; but it has received little attention from independent investigators equipped by training to view the situation objectively.

Every forest owner must decide whether to sell the timber which he grows to someone else or to manufacture it himself. Every wood user, on the other hand, whether he is interested in semi-finished products such as lumber and pulp, or in finished products such as matches, boxes, automobiles, furniture, or agricultural implements, must decide whether to buy

his raw material or to produce it himself. For the sake of simplicity and because of their prominence, the present discussion will be limited to ownership in relation to the lumber industry and the pulp industry, but the lines of inquiry suggested are equally applicable to the other wood-using industries.

It is evident that two points of view must be considered: first, how profitable is the type of ownership to the owner, and second, how good is it for the forest? On the one hand, the benefit to the private owner is paramount; on the other, the ultimate public welfare.

As with many other phases of research in forest land ownership, this problem is best approached by a study of specific cases. Instances of every type of ownership should be examined, from the complete separation of land ownership to the most complicated forms of industrial integration. Only upon the basis of these widely varying experiences may conclusions of value be drawn.

In many European countries separate ownership of timberland and conversion facilities is the characteristic form. The growing of forests is there considered a sufficient business in itself, without the additional responsibility of the very different business of plant operation. Management of the land alone has proved to be satisfactory both in yielding a moderate but steady income and in perpetuating the forest. Correlation of existing information on European practices with particular examples of ownership in the United States might provide comparable data of considerable worth.

In this country the outstanding example of the forest owner who usually has no conversion facilities is the farmer. This is partly because the individual farm woodland is normally too small to justify its owner in installing and still less in maintaining a plant for the manufacture of its products, and partly because his attention is pretty thoroughly absorbed by other phases of the farm enterprise. Farm woodlands are, however, an important actual and potential source of wood for industrial purposes, and should by no means be left out of consideration in this connection. Studies are greatly needed as to the opportunities for farmers to become also wood manufacturers through cooperative effort rather than as individuals, and of the farm woodland as a dependable source of supply for industrial plants which by choice or necessity do not own sufficient forest land to supply their own needs.

Until rather recently the separate ownership of forest land outside of farms with no intention of engaging in the conversion of the timber, was inspired largely by the speculative motive. Forestry would be practised only to the slight degree necessary to preserve the forest until it could be sold at a profit because of an unearned price increment. Logging and milling have, however, accompanied land ownership where speculation in timber has not been the main objective, or where the owner has had to conduct his own operation in order to turn speculative profits into cash.^{2/}

^{2/} Greeley, W. B. Some public and economic aspects of the lumber industry. U.S. Dept. Agr., Office of the Secretary, Report No. 114. 1917.

Kirkland, B. P. "Continuous forest production of privately owned timberlands as a solution of the economic difficulties of the lumber industry." Jour. Forestry, 15: 15-64. 1917.

There is ample illustration of combined ownership of sawmills and forests in the United States, and this combination is common in newly developed regions far from markets. In such locations no independent plants would be available to which timber could be sold, so that if conversion were desired it would have to be undertaken by the owner. In such circumstances liquidation of timber has usually been the order of the day, with forest ownership and conversion jointly financed. Credit facilities generally cover short-term rather than long-term financing, and the enterprise results in the clear cutting and depletion of the forest, with the customary abandonment of the mill at the end of the operation. Variations of combined ownership exist, for example on the West Coast and in the South, where many mills own part of their timber and purchase the remainder in the open market.

Studies are needed of the conditions under which and the extent to which (1) plant ownership is necessary to enable a forest owner to find a satisfactory market for his timber, and (2) forest ownership is essential to assure a manufacturer an adequate and reasonably priced supply of raw material. On the other hand, research is important to determine whether and how far plant ownership by a forest owner may force overcutting or undesirable liquidation of timber during a depressed market in order to keep the plant running; and similarly whether forest ownership may unduly tie the hands of a manufacturer who might be

able to buy his timber to better advantage on the open market.

The much heavier investment required for the construction of a pulp mill than of a sawmill introduces some differences in the problem of industrial integration in the pulp industry as compared with the lumber industry. In the pulp industry more plants have perhaps reached the point where one of their chief interests is the perpetuation of their timber supply, either by actual ownership of forests or by partial ownership linked to some system of control of forested lands within the supply area. The demands of the industry have been considered regionally, and students have for some years reported upon the situation in New England,^{3/} the Adirondacks,^{4/} and the Lake States.^{5/} The recent

^{3/} Jones, Ernest F. "Forestry conceptions among timberland owners in the northeast spruce region." Jour. Forestry, 29: 175-180.

^{4/} Churchill, Howard L. "An example of industrial forestry in the Adirondacks." Jour. Forestry, 27: 23-26. 1929.

^{5/} Watson, Russell. "Notes on private forestry in the Lake States." Jour. Forestry, 29: 11-15. 1931.

Crocker, D. A. Pulpwood in the Lake States, Amer. Paper & Pulp Assn., Woodlands Section Series No. 3. February 1926.

expansion of pulp interests in the South has stimulated a series of reports, suggestions, and programs for that section.^{6/}

^{6/} Good, W. P. "Forestry program of the paper industry in the South." Jour. Forestry, 36: 180-187. 1938.

Bond, W. E. "The integration of forest industries in the southeastern United States." Ibid., 549-554.

Lents, G. H. "The farmer's side of the pulpwood problem in the South." Ibid., 560-564.

Rue, Matt. "The pulp and paper industry in relation to forest farming in the South." Ibid., 565-571.

McGowin, Julian F. "The lumberman's viewpoint on the forestry program for the South." Ibid., 572-575.

Further research is, however, necessary on the ownership problems of the pulp industry and still more on those of the lumber industry and other wood-using industries. This is perhaps particularly true of instances where manufacturers have acquired holdings of timberland in order to provide themselves with adequate supplies of raw material to insure the permanence of their enterprises. A case in point is a southern company which operates its forest on a sustained-yield basis in the support of sawmills, pulp mill, and other wood-using plants; while these mills, in turn, afford an outlet for the entire product of the forest. Yet the assumption that such a combination, successful as it may be in this instance, is the model upon which all large-scale enterprises should be based, may be erroneous, and should be investigated.

The business of managing a forest in continuous production is distinct from the business of manufacturing and selling forest products, and each requires a high degree of specialization in its operation. A forest managed for continuous production needs an outlet for forest material which varies greatly in quality and size. Not every forest property can be provided with an integrated outlet for its goods, owing to the heavy capitalization required for establishment of plants to

permit complete utilization. ^{7/} The researcher, therefore, may make a

7/ Kirkland, Burt P. "Status and opportunities of private forestry." A national plan for American forestry. Senate Doc. 12 (73d Cong. 1st sess.) Pp. 891-984. Especially pp. 981-982. 1933.

distinct contribution by comparing two firms in the same region and with similar forest properties, the one in a high state of integration, and the other engaged solely in the production of forest raw materials.

In comparing integrated and separate ownership of land and plants, a subject of primary importance is the effect of each type upon the forests themselves. Making allowances for size of holdings and for quantity and quality of timber, valuable conclusions might be drawn concerning firms in the same region which have a similar degree of integration but which differ in the extent of forestry practiced, and likewise concerning firms varying in the extent of their combination of ownership. There are examples of both combined ownership and separate ownership where scientific forestry is now being practiced. On the one hand, it is generally assumed that joint ownership of forests and conversion plants need not result in permanent destruction of the forest. On the other hand, it is claimed that the best forestry is fostered by independent ownership and management of timberland, and specific cases are cited in support of this contention. The precedent for separate ownership of timberland is well established in Federal and State forests scattered throughout the nation, a subject for examination in this respect is the effect of such ownership upon dependent conversion plants.

Some pulp manufacturers, especially in the South, are laying out programs of management to insure a continuous supply of raw material. These include ownership of timberland by pulp firms, supplemented by control of farm and other forest properties through legal contract and the pressure of economic interest. Generally joined to these programs is the provision for sustained-yield production of naval stores, lumber, poles, and pulpwood. To this phase of the program has been applied the term "integrated utilization". Studies of the application and progress of this program will be a fruitful field for research by governmental agencies and private investigators.

A further subject to be developed through case study is the effect of various types of separate ownership and combination upon the dependent communities. It is well established that the out-out-and-get-out policy formerly associated with combined mill and forest ownership caused the disintegration of mill towns and adjacent rural communities.^{8/}

^{8/} See the section on "Social aspects of forest enterprise in relation to ownership."

Yet it is not certain that separate ownership of the timber would have altered this result, or would now benefit the local population. These are questions that need study in the light of the particular circumstances surrounding each situation.

Another question of interest to the consuming public is the relation of separate or combined ownership to competition. Ownership of the plant as well as the timber, by increasing the size and reducing

the number of operations, may lessen competition, with possible effect upon the supply and prices of the finished product. Comparative data will provide a basis for affirmative or negative conclusions as to the possible tendency toward monopoly where integration is well established.

Less than a merited amount of attention has been given to studies of the relative advantages and disadvantages of separate or combined ownership of timberland and manufacturing plant. Research to remedy this neglect will be of particular value to private owners and public agencies seeking better understanding of the relations between forest land ownership, forest production, and timber conversion.

EFFECT OF PUBLIC POLICIES UPON OWNERSHIP

The forest has played an important part in public policy here and abroad for many years. In the United States, public cooperation in the promotion of private forestry, public ownership and management of forest lands, and public restriction upon the use of privately owned forests, have been the subjects of widespread discussion and a mounting body of literature.^{1/} Nevertheless, there has been singularly little real

^{1/} Perhaps the most significant published studies on policy in relation to land ownership are the historical studies hitherto cited:

Ise, John. The United States forest policy. Yale Univ. Press. 1920.

Cameron, Jenks. The development of governmental forest control in the United States. Institute for Government Research, Studies in Administration. Johns Hopkins Press. 1928.

Hibbard, Benjamin H. A history of the public land policies. Macmillan. New York. 1924.

A local study significant for its purpose and its point of view is Cooperative forest study of the Grays Harbor area. Published by Western Forestry and Conservation Association with assistance of Charles Lathrop Pack. Portland, Oregon. 1929.

research into these matters, particularly as they pertain to problems of ownership.

Inasmuch as the trend of the past few years has been toward greater rather than less public concern with forestry, it is desirable that more stress be given to research which will explore the effect of governmental policy upon forest land ownership. Such investigation, with emphasis upon the results of past public policy, would be helpful in

establishing bases for new programs necessitated by new economic and social conditions. For consideration of investigators interested in this field, the following outline of important phases is suggested:

1. Public cooperation:

a. Promotion of private forestry through subsidies or other direct or indirect assistance in forest production and wood utilization:

1. Protection
2. Research
3. Extension
4. Promotion of wood use
5. Assistance in forest restoration and management
6. Credits
7. Adjustment of taxation
8. Tariff and related policies

b. Promotion of cooperative enterprise in forest communities.

2. Public forestry:

a. Reservation and management of public forest lands.

b. Acquisition of private land.

c. Division of public forestry among local and state agencies and the Federal government, and coordination of policies and programs.

3. Restrictions on the use of private owned forest land:

a. Land-use zoning.

b. Protective measures.

c. Silvicultural and management measures.

Public support of forestry through cooperative measures has been an established fact for a good many years.^{2/} This support has taken a

^{2/} The division of the Copeland Report (Senate Doc. 12, 73rd Cong., 1st Sess., 1933) dealing with Federal and State aid should be consulted

for information on this subject. The specific sections of this division are:

Hastings, A. B. "Federal financial and other direct aid to States." A national plan for American forestry, pp. 1053-1093.

Kneipp, L. F. "The national forests as a form of Federal aid to the States." Pp. 1095-1124.

Kirkland, Burt P. "Federal aid in organizing forest credit facilities," Pp. 1125-1134.

Hartley, Carl, and Boyce, J. S. "Forest pathology." Pp. 1135-1138.

Division of Forest Insects, Bureau of Entomology. "Forest entomology." pp. 1138-1140.

Frothingham, E. H. "Forest Service Research," Pp. 1140-1144.

Hastings, A. B. "Informational activities." Pp. 1144-1145.

Kneipp, L. F. "Public acquisition of private lands as an aid to private forestry." Pp. 1147-1176.

Eberly, H. J. "State aid to private owners and local political units." pp. 1177-1202.

A section on "Factors affecting Federal and State aid" is subdivided into the following parts:

Morrell, Fred. "Federal aid." Pp. 1203-1223.

Eberly, H. J. "State aid." Pp. 1223-1227.

variety of forms, differing in the degree of assistance according to sectional and temporal demands. There is need at this time for a thorough-going study of the effects of cooperation. Examination of whatever tangible results may be attributed to this aid, and of its influence upon private and public ownership of timber lands, would best be conducted by using the State as a unit, or if necessary, part of a State. In this manner samples might be drawn from the principal forest sections of the

nation, to indicate the effectiveness of cooperation in such regions as New England, the Lake States, the South, and the Pacific Northwest.

Surveys along these lines might stimulate inquiry as to the basic principles underlying public assistance. What, for example, are those principles? Do debates and committee hearings preceding the passage of enabling legislation indicate broad purposes justifying heavy governmental expenditures? To what extent should public assistance be extended, and how should it be divided between the State and Federal governments? ^{3/}

^{3/} Hastings, A. B. "Federal financial and other direct aid to States." Ibid., pp. 1063-1093. 1933.

One phase of this problem is the extent to which private ownership depends upon public aid in such matters as fire protection. ^{4/} Where

^{4/} This problem may be considered as a phase of costs and returns, discussed elsewhere in this report under the topic, "Size of Holdings."

public assistance now bulks larger than originally contemplated, there may be doubt as to whether private owners unaided could provide adequate protection. On the other hand, where present or reasonably certain prospective profit from merchantable timber now renders it possible for private owners to contribute more than their estimated share, it may be that a larger proportion of governmental aid will be necessary when favorable conditions no longer exist. Examination of these matters in particular localities will provide better understanding of the ownership pattern and contribute information invaluable in formulating future

policy, not only in respect to fire but also concerning other forms of protection and control, such as those concerned with insect pests and diseases.

It would be difficult to measure the influence upon forest land ownership of governmental assistance in research, extension, and the promotion of wood use. Nevertheless, aid along these lines and support to farmers and other owners in forest restoration and management have doubtless encouraged private ownership in many instances. Investigation indicating the extent to which this assistance may be responsible for stability or changes in ownership, will be helpful in determining proper appropriation of funds for forestry purposes. The problems of ownership in relation to the extension of credit and the adjustment of taxation have been treated elsewhere in this report, ^{5/} and are subject to

^{5/} See the section on "Stability of various classes of forest land ownership."

the same sort of consideration in connection with the cooperation phase of public policy.

Tariff policy in this country, varying as it does with political administration, has been the subject of active support and attack from time to time by groups of lumbermen and foresters.^{6/} Generally speaking,

^{6/} As samples of sectional commentaries on the tariff, see:

Dill, C. C. "Canadian trade treaty." West Coast Lumberman, 62: 20. 1935.

"Canadian reciprocal trade agreement." Ibid., 62: 36. 1935.

"Our new treaty with Canada." (Editorial.) The Timberman, p. 9.
Dec. 1935.

Greeley, W. B. "Bricks without straw." American Forests, 45: 31.
1939.

Compton, Wilson. How successful has been our tariff bargaining?
Pamphlet published by Nat. Lbr. Mfrs. Assn. 1937.

Hill, Robert C. "Strength characterizes shipping trade." The
Timberman, p. 36. Dec. 1935.

"Crisis in U. S. export trade." (Editorial.) Ibid., p. 9. Jan. 1936.

the protective aspect of the tariff has been defended by the forest interests, and any lowering of rates has met with condemnation in the light of immediate needs and conditions of the industries involved. However, there has been no intensive research as to the effect of varying degrees of protection on prices of forest products, and on timberland values in the United States.^{7/} Studies along these lines should include

^{7/} Fitch, E. M. The tariff on lumber. Published by Tariff Research Committee, Univ. of Wisconsin. Madison. 1936.

the pulp and paper industry as well as the lumber industry, and might well cover not only previous tariffs but also the present trade agreements so far as they affect timber products. With due allowance for other factors likely to influence prices or values, such research would throw much light on the effect of tariffs and trade agreements on the profitability of timber growing, and hence on their influence in encouraging or discouraging private ownership of forest lands.

Government has recently undertaken the promotion of cooperative enterprise among forest owners and operators in communities dependent at

least in part upon the forest for their existence. Although this form of aid is relatively new, it is not too early to take stock of its probable effectiveness in stimulating forestry and preserving existing ownership. Current study might well compare examples of government sponsorship of a cooperative development from its inception with instances of aid to a going concern. In turn, these two might be judged upon the premise held in some quarters that cooperatives may best succeed if organized independently, without governmental support of any kind.^{8/}

^{8/} Behre, C. E. and Lockard, C. R. Centralized Management and utilization adapted to farm woodlands in the Northeast. Charles Lathrop Pack Forestry Foundation and the New York State Coll. of Forestry. 1937.

Graves, Henry S. "Cooperative effort in forestry." Jour. Forestry, 35: 639-644. 1937.

That portion of public policy which deals with public forestry has been considered elsewhere in this report,^{9/} and hence may be treated

^{9/} See the sections on "Stability of Various Classes of Forest Land Ownership" and "Social Aspects of Forest Enterprise."

briefly here. Especially is this true in respect to the discussion of reservation and management of public forest lands and the acquisition of private land. Research on these topics, as upon the division of public forestry among local and State agencies and the Federal Government, should determine which type of ownership is best when considered in the light of the objectives sought. An interesting and significant subject for review is the influence of acquisition and management of forest land by

one party upon ownership and use of forest land by other classes in the same vicinity, for example, the effect upon private ownership of Federal purchases nearby.

The division of public forestry among local and State agencies and the Federal Government might well be examined more thoroughly than it has been in the past. Fundamental in this connection is consideration of the basic principles involved. Has public ownership by one agency or another been merely the result of accident, such as reversion of forest land by tax delinquency, or has it been the result of deliberate policy; and if the latter, why was it determined that certain lands should be held by the counties, the State, or the Federal Government?^{10/} What coordination

^{10/} The most complete account of state forestry is contained in the Copeland report:

Smith, Herbert A., Tillotson, C. R., and O'Donnell, Catherine M.
"State accomplishments and plans." A national plan for American forestry, pp. 733-843.

exists among these agencies in planning and executing their forest policies, and to what extent do they cooperate not only in the development of acquisition policies but in actual forest administration, especially in fire protection, timber use, wildlife management, and grazing?

Forest policy likewise comes under the surveillance of the Agricultural Land Planning Committees recently organized in the Department of Agriculture. In this system a hierarchy of county, State, and regional committees functions under a regional coordinator to join the interests of all these governmental divisions in all phases of agricultural policy.

Research by competent students with an adequate background in political science, economics, and forestry might well encompass the past experience and the present operation of these efforts at coordination among agencies engaged in formulating and carrying out policies which influence the ownership of forest land.

Restriction on the use of privately owned forest land in this country and abroad is rather fully treated in the Copeland Report.^{11/}

^{11/} Sparhawk, W. N. "Public regulation of private forestry." Ibid., pp. 993-1050.

Public regulation of private property is an established fact here and in other countries where governments have exercised control over natural resources for the benefit of the general public. The fact that such control came rather late in the United States, partly as a result of frontier conditions, makes it no less reasonable that it should now be applied to forests in private ownership so far as necessary to protect the public interest.

The Federal Government has not as yet essayed the regulation of private forest land use in the United States, although many of the individual States have adopted legislation on the subject, particularly with reference to protection from fire. In recent years the form of regulation known as land-use zoning ^{12/} has been widely discussed by

^{12/} Zoning has been considered as a State function, attaining legal status through the police power vested in the State. For a general treatment of the subject of zoning, see:

Pollard, W. L., ed. "Zoning in the United States." Amer. Acad. Polit. and Social Sci. Annals, 115: pt. 2. Philadelphia. 1931.

Wilson, F. G., and Trenk, F. B. "Local governmental control in land utilization and forestry." Jour. Forestry 31: 796-806, 920, 922. 1933.

Show, S. B. "The place of zoning in land use planning." West. Farm Econ. Assn. Proc., 7: 28-35. 1934.

many agencies, ^{13/} and has been put into effect by legislative action in

^{13/} Hendrickson, C. I. Rural zoning. U. S. Dept. Agr., Bur. Agr. Econ., Div. Land Econ. (Mimeographed.) 1935.

Rural zoning: controlling land utilization under the police power. U. S. Dept. Agr., Bur. Agr. Econ., Div. Land Econ. (Mimeographed.) (1936) Also published in Jour. Farm Econ., 18: 477-492. 1936.

County planning and zoning: lists of enabling acts and commissions. U. S. Dept. Agr., Bur. Agr. Econ., Div. Land Econ. (Mimeographed.) 1936.

Wehrwein, George S., Hendrickson, Clarence I., Saunderson, M. H., Glick, Philip M., Taylor, Carl C., Kennedy, Francis R., and Harris, Marshall. "The remedies: policies for private lands." Yearbook, 241-264. U. S. Dept. Agr. 1938.

several States, ^{14/} notably Michigan ^{15/} and Wisconsin, ^{16/} where forested

^{14/} Blackmore, John. "Planning and zoning in the State of Washington." Jour. Land & Pub. Utility Econ., 12: 205-206. 1936.

Whitten, Robert. "Rural zoning in New York." Ibid., 12: 313-314. 1936.

Wehrwein, G. S. "Enactment and administration of rural county zoning ordinances." Jour. Farm Econ., 18: 508-522. 1936.

Jesness, O. B., and Nowell, R. I. Zoning of Minnesota lands. Minn. Univ., Agr. Ext. Spec. Bull. 167. 1934.

15/ Herbert, P. A. "Michigan enacts rural zoning law." Jour. Forestry, 33: 694-696. 1935.

16/ Literature on zoning in Wisconsin is fairly abundant. A few of the interesting items are:

Rowlands, W. A. "County zoning for agriculture, forestry, and recreation in Wisconsin." Jour. Land & Pub. Utility Econ., 9: 272-282. 1933.

County zoning in Wisconsin. Economic and social foundation. The enabling law. The procedure enacting. Wis. Univ., Agr. Col., Ext. Serv. Stencil Cir. 154. (Mimeographed.) Madison. 1934.

, and Trenk, F. B. Rural zoning ordinances in Wisconsin. Wis. Univ., Agr. Col., Ext. Cir. 281. Madison. 1936.

Trenk, F. B. "Land zoning in out-over regions." Ames Forester, 22: 30-33. 1934.

Wehrwein, G. S. "County zoning in Wisconsin: agriculture, forestry and recreation." Minn. Municipalities, 19: 83-87. 1934.

Wilson, F. G. "Zoning as a part of a land use program." Jour. Forestry, 33: 194-196. 1935.

areas have received direct attention. There is need for further study, in some of which legal training would be helpful, into the principles underlying zoning,^{17/} the need for it, the degree to which it should be

17/ An article suggestive to the researcher in political economy is:

Wehrwein, G. S. "Problems for research in public finance arising from land-use zoning programs." Jour. Farm Econ., 16: 119-126, 1934. Discussion by J. Roy Blough, pp. 127-129.

permanent, and its probable effectiveness in promoting the practice of forestry and the retention of forest land in private ownership.

Research into the effectiveness of State laws requiring action by private owners in protecting their lands from fire and pests, and their

possible influence upon forest land ownership, would be of considerable worth. Similar investigations of the results of the small number of State acts pertaining to silviculture and management would provide a more adequate understanding on which to base recommendations for future regulation, including the need and practicability of Federal participation.^{18/} It is important to learn how essential regulatory legislation

^{18/} Sparhawk, W. N. "A possible program of public regulation." A national plan for American forestry, pp. 1343-1354. 1933.

is in the protection of all phases of the public interest. Furthermore, from the legal point of view, there is a question as to how far State and Federal governments may go in restraining the owner of forest land without objections under the due process and other clauses of the Constitution. A study of pertinent cases in constitutional law would be of assistance in this connection,^{19/} and would throw light on the probable constitu-

^{19/} An opinion by an Attorney General of New York State outlines one method of approach:

Newton, Hon. Charles D. "State regulation of cuttings on privately owned lands." Jour. Forestry, 19: 707-717. 1921.

A more recent study is:

Glick, Philip M. "The soil and the law." Yearbook, 296-318. U. S. Dept. Agr. 1938.

tionality of the various control measures which have been proposed.

There is ample room for research into the effect of public policies upon ownership and changes in ownership, and, conversely, into the

effect of ownership patterns on the public forest policies of the States and the Federal Government. Not only the forester, but also the lawyer, the political scientist, and the economist, may be called upon to conduct examinations and make analyses significant in the relation between public policy and forest ownership in the United States.

SOCIAL ASPECTS OF FOREST ENTERPRISE IN RELATION TO OWNERSHIP

The social values to be realized from forest land and forest industries, long recognized by foresters and social scientists as of prime importance, have received increasing attention in recent years and particularly since the depression. As a consequence, forest economy has a place in many of the projects for part-time farming, subsistence homesteads, resettlement, retirement of submarginal agricultural land, and in a variety of programs of land planning and utilization involving both public and private enterprise. The resulting literature, based perforce on active demands of law-makers and those charged with execution of emergency plans, was often not the result of intensive research. Furthermore, much of the work has neglected the relation of land ownership to the social problems involved. This is a phase of the subject which may be considered fundamental, inasmuch as the stratum of ownership underlies all forms of land use, and in no small degree governs the nature of human structures on the surface.

Problems already studied or requiring research in the field of social problems affecting forest land ownership may be classified as follows:

1. Relation of various classes of ownership to different types of industrial employment such as:
 - a. Casual labor.
 - b. Labor wholly dependent on forest industry.
 - c. Part-time labor.

1. Seasonal
2. Throughout the year: intermittent

2. Relations of various classes of ownership to different types of forest industry communities such as:

- a. Those on sustained-yield basis.
- b. Those on liquidation basis.

1. Ghost towns

- c. Company towns.
- d. Open towns.
- e. Multiple-industry and single-industry communities.
- f. Those operating under absentee ownership.

3. Relation of variously owned forest enterprises in coordination with other occupations such as farming, ranching, mining, and recreation, to form well-balanced communities.

4. Extent of contributions by forests under various classes of owners in the form of non-commodity values:

- a. Recreation.
- b. Wildlife.
- c. Water conservation and regulation of streamflow.
- d. Erosion control.
- e. Amelioration of climate.

The problem of labor in the forest and in forest industries, although approached statistically by the Bureau of the Census and the Bureau of Labor Statistics, has received comparatively little attention in its relation to ownership of the basic resource, the forest land. Early in the present century observers pointed out that maladjustments within the industries, such as the great and inefficient turnover in labor, were due to the roving, impermanent nature of the industries themselves, and suggested methods of increasing stability by adding to the satisfaction of the employees.^{1/} At times of particular stress,

^{1/} E.g., The Timberman, 2: 6. 1900.

Proceedings of the Pacific Coast Logging Congress, 13: 51.
Also successive issues, passim.

such as the period of strikes during the World War, the public and government officials have become acutely aware of the casual worker in forest industries. Investigations by sociologists, economists, and foresters justified the conclusions of earlier students, and urged that working and living conditions be improved to promote the contentment and reliability of labor in private employ.^{2/}

2/ Howd, Cloice R. Industrial relations in the West Coast lumber industry. Bur. Labor Stat. Bull. 349 (misc. ser.) 1923.

Ogburn, William F. "Causes and remedies of labor unrest in the lumber industry." Univ. of Washington Forest Club Annual, 4: 11-13. 1918.

"Unrest in the lumber industry of the Pacific Northwest." Report of the President's Mediation Commission to the President of the United States. 1918.

Final report of the United States Commission on Industrial Relations. Senate Doc. 415. (64th Cong., 1st Sess.). 1916.

Silcox, F. A. "Forestry and Labor." Jour. Forestry, 18: 317. 1920.

Kirkland, Burt P. "Effects of destructive lumbering on labor." Ibid., 18: 318-320. 1920.

That the situation has improved only to a degree is evidenced by continued instability.^{3/} The extent to which various types of private

3/ Todes, Charlotte, Labor and lumber. New York. 1931. A publication of International Publishers Company, engaged in publishing works of a decidedly Marxian character. This book is designed to appeal to the "radical" working man, but contains many data inaccessible elsewhere in the same convenient form.

Hathway, Marion. The migratory worker and family life. Social Service Monograph 21. Univ. of Chicago. 1934. The subtitle is, "The mode of living and public provision for the needs of the family of the migratory worker in selected industries of the State of Washington."

Neuberger, Richard L. "Labor unrest invades the forests."
(Condensed from The New York Times Magazine for May 30.)
Conservation, 3: 10-11. July-Aug. 1937.

ownership have contributed to these difficulties, however, has not been determined. Case studies of individual operations in selected classes of ownership are desirable. The information should include facts on the rate of turnover, a subject already treated in scattered instances by earlier investigators.^{4/} Other pertinent data should include wages,

^{4/} Parker, Carleton H. "The California casual and his revolt."
Quarterly Journal of Economics, 30: 110-126. 1915.

Douglas, P. H. "The problem of labor turnover." American Economic Review, 8: 306-316. 1918.

Wilson, Sinclair A. Permanency in Oregon's forest industry. Oregon State Agricultural College thesis for Master of Science degree. (Manuscript.) 1930. •

hours, housing, subsistence, safety, relations with foremen, transportation to and from the job, and other conditions of work. Of equal importance are the provisions made for the men outside of working hours, particularly the extent to which family life is encouraged and facilities for recreation provided. Such basic data would produce material for studies of all forms of labor employed by private owners of forest land.

Many communities, as well as individuals, rely wholly or in part upon the forest and forest industries for their existence. It is

therefore desirable to know the relation between various classes of private ownership of timberland and the different types of community which they support. The forest enterprise which gives promise of stability and comparative permanence for the group life of its dependent population, may expect in return a more stable and efficient force of employees. If there is a pattern of reciprocity between class of ownership and type of community, research would perform a service by describing such a pattern.

Although the literature on the subject of the forest or forest industry community has not emphasized the fact of ownership, nevertheless a great deal has been written to illustrate the effect of private forest and lumbering practices upon the life of communities. For the most part, these studies have been critical of the role of private enterprise for its destruction not only of the forests themselves, but also of the towns supported by them. The proposition that past private operations have had evil effects upon communities has usually led to the corollary that public ownership of the forests would be the salvation of community life.

A provocative article by W. N. Sparhawk outlines the problem of employment and community welfare in relation to both private and public forestry. ^{5/} Among the outstanding studies of communities dependent

^{5/} Sparhawk, W. N. "Forestry and employment." Jour. Land & Pub. Utility Econ., 9: 145-149. 1933.

upon forest operations are those by Samuel T. Dana^{6/} upon the subject

6/ Dana, Samuel T. Forests and community development. U.S. Dept. Agr. Bull. 638. 1918.

"A forest tragedy: the rise and fall of a lumber town." Munsey's Magazine, 60: 353-363. 1917.

"The tragedy of Cross Forks." Canadian Forestry Jour., 14: 1741. 1918.

as a whole and upon an outstanding example in Pennsylvania. Benton MacKaye, at about the time of Dana's investigations, linked the forest problem with the development of other natural resources, and specifically advised the charting of "working units" of publicly owned or cooperatively managed public and private forest holdings in the interest of stabilized employment and community life.^{7/} A few articles, not strictly the result

7/ MacKaye, Benton. Employment and natural resources. U.S. Dept. Labor Off. Sec. 1919.

See also, _____ "Some social aspects of forest management." Jour. Forestry, 16: 210-214. 1918.

of research, may be cited as examples of supporting literature.^{8/}

8/ Terry, E.I. "Forest management on the national forests." Ibid., 16: 565-566. 1918.

Chandler, B. A. "Financial loss to the community due to forest lands becoming wastes." Ibid., 18: 31-33. 1920.

Silcox, F. A. "Boom and bust." Country Home, 60: 14-17. July 1936. A summary of this article appeared as "Boom and bust; ghost towns of the lumber regions." Readers Digest, 29: 63-64. September 1936.

The effect of forest destruction upon the social and economic life of the population has been treated adequately for northern Michigan,^{9/}

9/ Sparhawk, W.N., and Brush, W. D. The economic aspects of forest destruction in northern Michigan. U.S. Dept. of Agr. Tech. Bull. 92. 1929.

while some of the local and State investigations aimed at land planning have likewise dealt with this subject.^{10/} Some authors have given

10/ E.g., Minnesota Committee on Land Utilization. Land utilization in Minnesota; a state program for the out-over lands. Minneapolis. Univ. of Minn. Press. 1934.

Herbert, P.A. "Rural land zoning." Michigan commission of inquiry into county, township and school district government. (Michigan Local Govt. Series.) Pp. 21-27. 1933.

attention to the effect of forest enterprise upon the ability of neighboring farmers to find local markets for their crops or part-time employment in the woods or in industry.^{11/} Most of the publications

11/ E.g., Davis, D. H. "The Finland community." Geographic Review, 25: 382-394. 1935.

Rubols, Ben H. Part-time farming in Washington. State Coll. of Wash. Agr. Expt. Sta. Bull. 316. 1935.

Sparhawk, W. N., and Show, S. B. "Is forestry justified?" A national plan for American forestry. Senate Doc. 12 (73d Cong. 1st sess.) Pp. 85-119, esp. 107. 1933.

cited have emphasized the destructive force of forest devastation on the community. There are examples, however, of communities enjoying relatively stable economic and social life under the conservative or

sustained-yield practice of private owners and operators, although published records concerning them are few.^{12/}

12/ Ibid., pp. 109-110.

Chapman, H. H. "This is forestry." American Forests and Forest Life, 30: 650-652. 1924.

Hudson, George M. "A study of a permanent Alabama lumber town." Jour. Geography, 36: 308-314. 1937.

There is need for continued research on problems affecting forest land ownership and community development. Studies similar to those already made concerning the effect of private practices leading to destruction of both forest and community might be made with special reference to the type of towns involved, in correlation with the nature of the ownership of the forest land. Various types of towns would include those on a liquidation basis, company towns, open towns, multiple-industry and single-industry communities, and those operating under absentee ownership. Equally significant, and hitherto somewhat neglected, are studies of communities dependent upon forests operated under the sustained-yield principle, describing such factors as the amount of responsibility of the populace in governmental affairs, the facilities for recreation, the income of the inhabitants, the dependence of families upon sources of livelihood other than the forest or forest industries, and the general stability of the population. Data of this nature would be of value not only to individuals and private concerns, but also to public agencies engaged in formulating future policy.

It has been assumed by many students that the stability afforded by public ownership of forest land tends to benefit the settled worker, provide income to those who need part-time employment, eliminate conditions which favor casual labor, and generally offer a more satisfying and permanent existence to dependent communities. Yet there has been little research which would throw light on this assumption. What may be expected from the establishment and management of a national forest has been suggested in articles by L. L. Bishop and M. H. Wolff.^{13/}

^{13/} Bishop, L. L. "A national forest as a local economic factor." Jour. Forestry, 29: 1060-1066. 1931.

Wolff, M. H. "Plan of relation of forest regulation to forest communities." Ibid., 18: 486-497. 1920.

Of the studies which have been made, the majority are the result of investigations connected with the Federal acquisition policy. The recent purchase program of the Federal Government and plans for relief and rehabilitation within the affected areas have led to estimates and surveys of value which include data not only upon populations supported largely by forests and forest industries, but also upon the coordination of these enterprises with such occupations as farming, ranching, mining, and recreation to form well-balanced communities. The most detailed of these surveys are those by Ineson^{14/} and Camp^{15/} of the

^{14/} Ineson, F. A. Population stabilization and social relief through a five-year work program in the national forests of the north central region. U.S. Forest Serv. (Mimeographed.) (1934?)

"Subsistence homestead" communities and the Huron National Forest. U. S. Forest Serv. (Mimeographed.) 1934.

Permanent rehabilitation through the national forest work program in southern Missouri. (Mimeographed.) 1934.

Proposed "subsistence homestead" community on the Nicolet National Forest at Hiles, Wisconsin. (Mimeographed.) (1934?)

15/ Camp, John R. The human side of the national forest program in the southern Appalachian Highlands. (Manuscript.)

The human side of the national forest program in the northern Lake States. (Manuscript.)

The human side of the national forest program in the eastern Cotton area. (Manuscript.)

The human side of the national forest program in southern Illinois. (Manuscript.)

These studies were made from existing data in July and August of 1937.

Forest Service. In addition, the files of the Division of Community Development and Construction of the Forest Service contain some sixty or seventy manuscript reports originally designed to be of use in the proposed purchase program of the Resettlement Administration. The data for these, including brief descriptions of social and economic conditions, were collected from widely scattered problem areas throughout the country. The Forest Service has enumerated, and classified as to dependency, the farm units or families within and near the limits of the eastern national forests. The Tennessee Valley Authority has collected information on the economic and social status of persons in

its territory. Concerning public ownership by States and lesser political subdivisions, research in respect to employment and social life of forest communities is not abundant.^{16/}

16/ Sparhawk, W. N., and Show, S. B. "Is forestry justified?"
A national plan for American forestry. Senate Doc. 12 (73d
Cong. 1st sess.) Pp. 85-119. 1933.

Smith, Herbert A., Tillotson, C. R., and O'Donnell, Catherine M.
"State accomplishments and plans." Ibid., pp. 733-842.

Tillotson, C. R. "Community forests." Ibid., pp. 843-850.

The county forests of Wisconsin. State Conservation Dept.
Madison. 1938.

Wilson, F. G. "County forests - a cooperative venture."
Jour. Forestry, 36: 224-227. 1938.

Hawes, Austin F. "State forests and the unemployment problem."
Ibid., 29: 1191-1194. 1931.

Prescott, Herbert F. Municipal or community forests. Their
importance as a source of future timber supply, for the
conservation of wildlife and for recreational use.
Conservation Dept. Albany, N. Y. 1938.

For further citations, see Community forests: a bibliography of
publications and literature relating to community forests.
U. S. Forest Serv., Division of State Cooperation. (Mimeographed.)
1938.

There is opportunity for a variety of useful research upon questions of public ownership of timberland in relation to employment and community welfare. In the first place, those charged with prosecution of measures affecting the inhabitants of publicly owned forest regions find themselves handicapped by lack of an adequate body of facts with which to approach their problems. In each locality there

is need for a survey of the population, to ascertain the number of families and the number of members in each family, to enumerate the unattached individuals permanently resident there, and to record the extent to which casual or migratory labor is employed in the forest industries and in such protective work as fire fighting. Secondly, it is highly desirable that population trends within publicly owned forest areas be determined. For example, is the population increasing or decreasing? Is the tendency toward tenancy or ownership of home properties? What is the trend of income? What is the recent history of labor organizations and strikes in local industries? The answers to such questions as these will be especially significant in view of the prospect for continuance or abandonment of forest-supported economy of the locality. In the third place, public programs for the maintenance or resettlement of the population of a forested area would be aided by knowledge of how much forest land in a given locality is required to support a family. Such information, graded according to the amount of subsistence farming or other non-forest work available, would render the administrator's task much easier. Fourthly, case studies of communities supported by publicly owned forests and local forest industries would be of value. While a few such studies may be possible of State, county, or town ownership, more striking illustrations may be drawn from the national forests. Flagstaff, Arizona, has been suggested as an example of community stabilization due to the administration on a sustained-yield and multiple-use basis of the surrounding national forests.

It is possible that research may reveal infrequent cases where public acquisition of neighboring forests has not had the expected beneficial effects upon community life and economy.

Among the greatest needs for research in modern forestry is a better knowledge of the part to be played by lands in private and public ownership in the attainment of such non-profit objectives as recreation, wildlife, water conservation and regulation of streamflow, erosion control, and the amelioration of climate. The legitimacy of these forms of forest utilization is recognized, but the extent to which they may be assured under private as well as public ownership of forest land is one of the outstanding subjects of debate today.

Recreation and wildlife differ from the other subjects mentioned above, in that they are susceptible in some degree to the profit motive, and hence may be considered as more likely to obtain support from the private owner. Widespread interest in recreation and wildlife in connection with private and public forest enterprise is evidenced by an increasing body of literature.^{17/} Yet there is a relatively small number

^{17/} Forest recreation: a bibliography. Compiled by the U. S. Forest Service Library. 1938. A section is devoted to wildlife.

of research projects dealing with the topics in an intensive manner.^{18/}

^{18/} Forest research in the United States. Lake States For. Expt. Sta. in cooperation with Committee on Forestry, Div. of Biology and Agriculture, National Research Council. (Mimeographed.) Nat. Research Council, Wash., D.C. 1938. Pp. 52-55, 120-123.

See, Leopold, Aldo. Game management. Scribners. New York. 1933.

Wildlife and the land: a story of regeneration. U. S. Senate,
Special Committee on Conservation of Wildlife Resources.
(75th Cong., 1st Sess.) 1937.

From the point of view of the private owner, study is desirable to point out ways and means of making profitable the management of wildlife resources and the utilization of the forest for recreation. Where recreation apart from hunting is the consideration, improvements of some sort will probably be necessary to attract customers. This is especially true where competition is afforded by cheap or free facilities for recreation on neighboring public forests. Where the latter condition exists investigation of the effects of the public recreational activity upon private enterprise of the same sort will be instructive, and may lead to provision for some satisfactory division of function between the two types of operation. In any event, extension work on the part of public agencies may be found of assistance in stimulating the private undertaking. If hunting is the logical form of recreation on private lands, there is need in most States for further study of the influence of the legal restrictions upon the breeding and killing of game on one's own property. When it is proven that legislation has been a deterrent to private game management, further research may be required to initiate remedial measures. Another line of exploration may lead to the development of game management for the production of furs, not by the usual method of fur farming, but by the breeding of wild animals on forest land.

Multiple-use management of publicly owned forests almost

invariably includes recreation and wildlife. Here the most searching question for research is one of costs and returns. Segregation of that part of the cost of management which can be attributed to recreation and wildlife purposes should be followed by measurement of the returns, in cash and social values, from each source.^{19/} More study should be

^{19/} Sparhawk, W. N., and Show, S. B. "Is forestry justified?"
A national plan for American forestry, Pp. 85-117.

Roberts, Paul H., Stone, J. H., and O'Malley, Henry. "Wildlife a forest resource." Ibid., pp. 489-525.

Roberts, Paul H. "A forest wildlife program." Ibid., pp. 1547-1554.

Marshall, Robert. "A program for forest recreation." Ibid., pp. 1543-1546.

_____ "The forest for recreation." Ibid., pp. 463-487.

given to the means of measuring recreational returns, especially, because of their intangible character.^{20/} The extent to which government

^{20/} Marshall, Robert. "The forest for recreation." Ibid., pp. 466-468.

agencies may assume responsibility for providing forests largely recreational in purpose, is an important question. The problem is illustrated by such a condition as exists in the Lake States, where privately-owned recreational areas tend to be limited to narrow strips around the lakes. The permanence of this use, however, depends upon an immediate hinterland of attractive forests. It is not likely that private owners of short tracts will acquire any considerable amount of

this land to preserve their interests, nor would private ownership in other hands insure proper care of the "background". Although it has not been considered within the province of public bodies to obtain beneficent control over this land, the future of extensive recreational regions may depend upon correlation with some form of governmental ownership.

The influence of the forest on water conservation and regulation of streamflow, erosion control, and the amelioration of climate have been subjects for research for a good many years, and a considerable literature has arisen about them. ^{21/} It has been generally conceded

^{21/} Ashe, W. W. "Special relations of forests to rivers in the United States." Preliminary report of the Inland Waterways Commission. Sen. Doc. 325 (60th Cong., 1st Sess.) 1908.

Zon, Raphael. "Forest and water in the light of scientific investigation." Final report of national waterways commission. Appendix V. Govt. Printing Off. 1912.

Sherman, E. A. Relation of forestry to the control of floods in the Mississippi Valley. H. R. Doc. 573. (70th Cong., 2nd sess.) 1929.

Munns, E. N., and Sims, I.H. Forests in flood control: supplemental report to the committee on flood control on H. R. 12517. (74th Cong., 2d sess.) 1936.

Munns, E. N., Chapline, W. R., Forbes, R. D., Kellogg, L. F., and Meginnis, H. G. "Watershed and related forest influences." A national plan for American forestry, pp. 299-461.

Watts, L. F., Munns, E. N., Chapline, W. R., and Schnur, Luther G. "A watershed protection program." Ibid., pp. 1509-1536.

Bibliographical aids on these subjects are:

Erosion, a partial bibliography. Soil Conservation Service. 1933.

Shelterbelts for the prairies. U. S. Forest Serv. Library. 1934.

Forests and streamflow. U. S. Forest Serv. Library. Up-to-date through 1938.

Erosion. U. S. Forest Serv. Library. Up-to-date through 1938.

that they are best fostered by public ownership of the forest land. The private owner, however, in the practice of good forestry, will do his part in supporting these influences by reasonable cutting of the timber and proper protective measures for the management of his holding on a sustained-yield basis. Under such circumstances the cost in excess of that required for good management would be negligible. The problem of encouraging private owners to give adequate attention to the forest influences is the problem of stimulating conservative or sustained-yield management, and research on either of these subjects should not neglect the other.

The place of the forest influences in a program of public forestry is a topic for intensive study. The policy of public acquisition has been based to a great extent upon the belief that control by ownership was the best means of protecting the public interest in these intangible benefits. Research upon forest influences in relation to public ownership should first consider the means of measuring the value of the influences. Secondly, many public forest holdings exist more for the support of these intangible benefits including recreation and wildlife conservation, than for the management of harvestable timber. With this in mind, an obvious subject for study is the cost of preserving the forest influences compared with the returns. In effect, how much money

should be spent by the public in purchase, administration, and improvement, to obtain non-cash returns in the form of benefits which are to some extent imponderable? Investigation along these lines would be of importance in the formulation and execution of public policy.

Into the various social aspects of forestry a great deal of thought has been centered during the past few years. The problems involved have now been recognized not only by students and experts, but also by the public at large, and the consideration of the human side of forestry has probably assumed a permanent position in the forester's program alongside the growing of trees. The mingled employment of the techniques of many social and natural sciences will be required in the satisfactory understanding and solution of the problems facing foresters in this field.