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ABSTRACT

Documents which address the interface between forestry and the social sciences comprise this annotated bibliography. A subject-matter classification scheme is used to group publications by subheadings under five major heading: (1) social science applied to forestry at large; (2) applied to forestry's productive agents; (3) applied to forest production; (4) applied to manufacturing; and (5) applied to marketing trade, and demand for forest output. Arranged alphabetically by author, each entry contains the document's complete citation and a brief abstract. If the publication is not in English, the language used is indicated. An author index is also provided. An appendix lists theses and dissertations in progress in the United States and Canada. Compilation sources included numerous U.S. and foreign journals, publications lists from U.S. Forest Service Experiment Stations, and selected data bases. (DC)

SOCIAL SCIENCES in FORESTRY

A CURRENT SELECTED BIBLIOGRAPHY

NO. 57 FEBRUARY 1982

SPECIAL APPENDIX:

THESES AND DISSERTATIONS IN PROGRESS

JUDITH L. SCHWAB, EDITOR

DEPARTMENT OF FORESTRY
SCHOOL OF FORESTRY & WILDLIFE RESOURCES
VIRGINIA POLYTECHNIC INSTITUTE & STATE UNIVERSITY
BLACKSBURG, VIRGINIA 24061

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Editor

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY
School of Forestry and Wildlife Resources
Department of Forestry
Blacksburg, Virginia 24061

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SOCIAL SCIENCES IN FORESTRY

Subject-Matter Classification Scheme

Note: This outline is regarded as working for the most part from the general to the specific. Material covering two or more sections of this outline is classified in the most general of these sections. Material which is classifiable in any of two or more sections is classified in the most specific of these sections. *Asterisks mark those subjects which are not represented in this issue.

I. SOCIAL SCIENCE APPLIED TO FORESTRY AT LARGE

A. General principles, scope, content, method

B. History, status, prospects of forestry in an area, society in an area (This section includes material on forest resources alone, as opposed to that on consumer or intermediate resources alone, for which see appropriate sections.)

1. General
2. United States, Canada
3. Other north-temperate nations
*4. South-temperate nations
5. Nations in lower latitudes

C. Law, politics, policy, plan, program, and their administration

D. Other influences

1. Taxation

a. General
b. Property, general and special; severance; lieu payment
c. Income, inheritance, other

2. Valuation (See also IIIA5i)
*3. Insurance
4. Social interest, value system, custom; folklore, culture
*5. Characteristics of the individual
6. Public relations, other

E. Research (For research on specific topics, see those topics.)

F. Professional and subprofessional affairs, education, employment of foresters

G. Social and economic development (See also IB)

H. Environmental concern

II. APPLIED TO FORESTRY'S PRODUCTIVE AGENTS
(See also the individual operation or type of output in III, IV, V)

A. Labor (Some material on labor will be found in IF, IV)

1. General, employment, demand
*2. Supply, union
3. Wage, cost hours, productivity, technology, training, return, benefit
4. Working condition, turnover, absenteeism, safety, insurance
5. Characteristics of the worker

B. Owner, ownership, manager, entrepreneuer, holding (See also IC, IIC3)

1. General
2. Public

a. General
b. Federal, central
c. Regional, local

3. Private

a. General
b. Industrial
c. Nonindustrial

C. Land

*1. Context of supply, requirement, etc.
2. Description, use trend and status, interpreted description
3. Management, use prospect and plan, planning, marketing, tenure
*4. Research method

D. Capital

1. General, investment, interest, finance
(For investment in forest production, see IIIE; for that in manufacturing, see IVA4).
*2. Credit

III. APPLIED TO FOREST PRODUCTION (See also IIB, C)

A. Production including nontimber commodities and services

1. General, supply, multipurpose management
2. Christmas trees, greens
3. Range and livestock
*4. Naval stores, maple product
5. Recreation
   a. General
   b. Research
   c. Decision
   d. Demand, consumer, market
   e. Parks and wilderness areas
   *f. Interpretation
   g. Aesthetic values
   h. Consumer activities such as driving, walking, camping, etc.
   i. Valuation
6. Water, soil, watershed management, shelterbelts
7. Wildlife, hunting, fishing
8. Urban forestry

B. Production chiefly of timber

1. General, supply
*2. Soil, site, site improvement
3. Tree regeneration and improvement; plantation
*4. Intermediate cutting, pruning, stand improvement
5. Harvest cutting, rotation, cutting cycle, stocking, regulation, allowable cut
   (For harvesting treated as engineering, see IVB)

*C. Roads, other forest-management transportation

(For transportation in harvesting, see IVB4; in manufacturing and marketing, VD)

D. Damage and protection

1. From fire
*2. Prescribed burning
*3. From insects
4. From other agencies
   (For water damage and soil erosion, see IIIA6)

E. Decision making, planning, investment, accounting, inventorying

(For investment in general, see IID1)

IV. APPLIED TO MANUFACTURING
(For material on forestry in general, including forest land resources, see IID1)

A. The industry in general

1. Status and trend

*a. General
b. United States, Canada
c. Other north-temperate nations
*d. South-temperate nations
e. Nations in lower latitudes

2. Directory
(Includes those covering specific branches of industry.)
*3. History
4. Decision making, planning, investment, accounting, inventorying
(For a specific branch of industry, see that branch, "Operation of firm"; for investment in general, see IID1)

B. Timber-harvesting industry
(Includes roundwood in general; for specific types, see IVC "raw material." For harvesting as silviculture, see IIIB4, 5)

1. Status and trend
2. Operation of firm
3. Utilization of the stand or tree
(For utilization of a specific product, see the branch of industry in question.)

a. General
b. Logging residue and its disposal

4. Transportation (Skidding, yarding, loading, hauling to mill. For transportation in forest management, see IIIC; in manufacturing and marketing, see VD)

C. Wood-using industry

1. Lumber, allied product, pallet

a. Industry status and trend
*b. Production, consumption, stocks, other statistics
(For sawtimber, see IB, IVB; for sawlogs, see IVC1d)
*c. Operation of firm
*d. Raw material

2. Pulp, paper, board

a. Industry status and trend
*b. Operation of firm
c. Raw material
*d. By-products

3. Veneer, plywood, panel

*a. Industry status and trend
b. Operation of firm
*c. Raw material

*4. Bark, chips other residue
(See also IVB3 and the industry branch in question, "Operation of firm.")
*5. Furniture
6. Particleboard, hardboard, fibreboard, flakeboard
*7. Construction
8. Charcoal, fuelwood, other combustibles; energy
9. Other wood-using industry (including pole, piling, post, mine timber, railway tie)

*D. Other forest industry

*1. Decorative product
*2. Naval stores
*3. Maple product
*4. Other

V. APPLIED TO MARKETING, TRADE, DEMAND FOR FOREST OUTPUT
(For marketing and demand for productive agents, see II)

A. Consumption

1. General; history of consumption; consumption-production relationships
2. Consumption or production prospect, goal, requirement, prediction (For material on short-term requirement, see the industry in question in IV, "Industry status and trend.")
*3. Consumer demand and preference
(For material on specific forest resources, see also IIIA,B)

B. Market, marketing, trade, export, import

1. General
*2. Futures, hedging
3. Stumpage, roundwood
4. Lumber, plywood, composition board
*5. Pulp, paper, paperboard

*a. Product
*b. Raw material

*6. Other wood products
*7. Christmas trees, greens
*8. Other type of output (See also IIC3)

C. Price, value

1. General
2. Stumpage, roundwood
3. Other type of output
*4. Price reporting

*D. Transportation (Includes transportation in manufacturing.) (For transportation in forest management, see IIIC; in harvesting see IVB4)

1753. 57 IA ANDERSEN LEIF, HELLES FINN A Systematic Approach to Dynamic Forestry Economics. Report from Dept. of Forestry, Series 2, No. 10. Denmark. (1981) In Danish. 23 pages.

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1763. 57 IB2 ADAMS D.M., HAYNES R.W. "The Demand-Supply-Price Outlook for U.S. Timber." In Proceedings, Timber Demand: The Future is Now. Forest Products Research Society. Madison, Wisconsin. (1980), pages 43-55. Recent projections of the North American forest economy to the year 2030 with details for softwood lumber and plywood, hardwood lumber, and pulp and paper products.

1764. 57 IB2 BECHTOLD WILLIAM A., SHEFFIELD RAYMOND M. Forest Statistics for Florida, 1980. USDA Forest Service Resource Bulletin SE-58, (1981), 40 pages. Since the fourth inventory of Florida's forest resources in 1970, area of commercial forest has declined by 597,000 acres, or 4 percent. Commercial forest now occupies 15.7 million acres, or 45 percent of the total land area. The ratio of pine types to hardwood types has remained the same, because declines in the total commercial forest were proportionately distributed between these types. Average basal area of all live trees 5.0 inches and larger has increased from 43 to 53 square feet per acre. Volume of growing stock has increased 20 percent for softwoods and 15 percent for hardwoods. Slash pine volume has increased by 35 percent, while longleaf pine volume has decreased by 8 percent. Net annual growth of growing stock averaged 50 cubic feet per acre, up by 17 cubic feet per acre since 1969. Annual removals of growing stock averaged 69 percent of net annual growth.

1765. 57 IB2 FISHER RICHARD F. "Productivity in Florida's Third Forest." Journal of Forestry, Vol. 79, No. 9 (1981), pages 613-615. In the late 1960s foresters in the South set out to apply intensive practices and high technology to create and manage a very productive domesticated forest. This third forest was to succeed the second-growth stands which became established on abandoned fields and cut over sites that had once supported [redacted]wth pine. During more than a decade, management has intensi[redacted] many new technologies have been developed. The South is producing more wood than ever before, but if the future demands are to be met the technologies must be further refined and management must become even more intensive.

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1767. 57 IB2 IRLAND LLOYD C. "B[redacted]ine House Conference on Maine's Forest Outlook." Journal of Forestry, Vol. 79, No. 10 (1981), pages 689-690, 702. A conference in Augusta, Maine, during January 1981 considered the ability of the forests to sustain increased demands created by industrial expansion. Damage by the spruce budworm, together with decades of non-management and diameter-limit harvesting, has left both spruce-fir and northern hardwood stands yielding far below potential but still capable of responding to good forestry. Participants were concerned that government regulations had a dampening effect on investment in forestry, and they regretted cutbacks in the state's forestry program.

1768. 57 IB2 JAKES PAMELA J. "Lake States' Resource Trends," Proceedings of Minnesota Forest Resource Inventory Conferences. USDA Forest Service General Technical Report NC-64. (1981), pages 10-25.

1769. 57 IB2 JOHNSON L.R. Quantities and Costs of Wood Biomass in Idaho. Bull. Idaho For. Wildl. Range Exp. Sta. (1979), 10 pages. Bibliography of Agriculture Vol. 44, No. 3/4. Conversion of wood biomass to usable energy forms.

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1773. 57 IB2 OSTROM ARNOLD J. Timber Volume in Minnesota, 1977. USDA Forest Service Research Note NC-262 (1981), 6 pages. Statistics on Minnesota's growing-stock and sawtimber volumes by county for 1977.

1774. 57 IB2 POULIN JEAN-NOËL "Quebec Forest: A Provider and an Economic Challenge." The Faculty of Forestry, University of Toronto - The Weyerhaeuser Lecture Series. (1980) In English and French. Pages 23-54.

1775. 57 IB2 QUICK T. RICHARD, HEDLUND MARY S. Forest Statistics for Southwest Arkansas Counties. USDA Forest Service Resource Bulletin SO-70 (1979), 22 pages. Tabulates forest resource information from a new inventory of counties in southwest Arkansas.

1776. 57 IB2 SATTERLEE R. "Timber Supply (in Montana)." Proc. Northwest Wood Prod. Clin. (1979), pages 7-8. Cited in Bibliography of Agriculture Vol. 45, No. 3.

1777. 57 IB2 SHEFFIELD RAYMOND M., BECHTOLD WILLIAM A. Forest Statistics for South Florida, 1980. USDA Forest Service Resource Bulletin SE-59 (1981), 33 pages. Since the fourth inventory of the forest resources of South Florida in 1970, the area of commercial forest land has increased by 109,000 acres and now totals 834,000 acres. Nonindustrial private landowners control 99 percent of the commercial forest land. The volume of growing stock on these lands has increased by 10 percent. Cypress accounts for 93 percent of the total volume gain. Net annual growth of growing stock totals 21 million cubic feet compared to 16 million cubic feet for annual timber removals.

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1782. 57 IB2 Proceedings of the Blaine House Conference on Forestry. Jan. 21-22, 1981. Department of Conservation, State House Station 22, Augusta, Maine 04333 (1981), 152 pages.

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1816. 57 IB3 VÁCLAV VLADIMÍR "Possibilities for the Establishment and Objectification of the Influence of Production-Economic Conditions on the Rentability of Forest Production in the Slovak Socialistic Republic." Lesnicky Casopis, Vol. 27, No. 3 (1981) In Czech with English summary. Pages 243-248. Overall assessment of information gained so far on the influence of production-economic conditions on economic results of forest production in the SSR. Defines and evaluates main problems and recommends measures for operational forest management.

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1820. 57 IB3 WILSON K.W. The Forestry Mission to China 1979. Occasional Paper No. 8. Forestry Commission, UK (1979), 94 pages. Cited in Forestry Abstracts Vol. 42, No. 7. Collection of six papers by members of the mission.

1821. 57 IB3 WU S.C. "Report on Northeast Asian Forest Investigation by Chinese Forestry Association Team Chung Hua Lin Hsueh Chi K'an Q J Chin For, Vol. 12, No. 3 (1979) In Chinese. Pages 123-147. Cited in Bibliography of Agriculture Vol. 45, No. 2.

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1825. 57 IB5 ASHISH N. "Agricultural Economy of Kumaon Hills." Econ. Polit. Wkly Vol. 14, No. 25 (1979), pages 1058-1064. Cited in Bibliography of Agriculture Vol. 44, No. 3/4. Deforestation in India.

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1827. 57 IB5 BAJRACHARYA K.M. Forestry Development in Suriname. Formulation and Implementation of Forest Policies and Programs. FAO Project Working Document 21. (1980), 67 pages. Cited in FAO Documentation Current Bibliography 81/5-6.

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pages 686-688, 699. Reforestation has become a primary concern of resource management and government in the Philippines. Efforts are hampered by technical and social problems. Environmental factors, lack of financing, and a shortage of trained manpower pose serious difficulties. An additional need is for methods that gain the interest and cooperation of local land users.

1832. 57 IB5 GALVÃO A. PAULO M. "Present Status of Forest Resources in the Tropics and Problems in Forestation and Afforestation: Present Situation in Central and South America." Proceedings, XVII IUFRO World Congress. Interdivisional. (1981), pages 73-78. Expansion of the agricultural front for the production of more food and increased use of wood for energy production are the main reasons for the significant decline in natural forest resources. It is important to have inventories available of the forest resources in Central and South America, presently incomplete and scarce, which will allow the planning of land use as the rational use of arboreal vegetation.

1833. 57 IB5 GOOR C.P. "Forestry in Developing Countries." Ned. Bosbouw. Tijdschr., Vol. 52, no. 6 (1980) In Dutch. Pages 166-171. Cited in Bibliography of Agriculture Vol. 44, No. 11/12.

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1836. 57 IB5 KUO P.C. "Forestry in the Philippines." Q.J. Chin. For., Vol. 12, No. 1 (1979) In Chinese. Pages 7-15. Cited in Bibliography of Agriculture Vol. 45, No. 1.

1837. 57 IB5 MELHUISH A.D., RAO Y.S., BORETTI P. Forestry Development in Selected Areas of Western Bhutan. Report on Consultancy Mission on Development of Forest Industries in Bhutan. FAO Forestry Dept. (1980), 260 pages. Cited in FAO Documentation Current Bibliography 81/7-8.

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1839. 57 IB5 OLEMBO R.J., OGAMBO-ONGOMA A.H. "The Present Situation of Forest Resources in Tropical Africa and Problems of Reforestation and Afforestation in the Region." Proceedings, XVII IUFRO World Congress. Interdivisional. (1981), pages 63-71. In tropical Africa a sizeable proportion of the existing forest has been subjected to the influence of human activities resulting in deforestation. Some responses to the removal of the original forest include secondary forests resulting from regeneration following shifting cultivation and planted fast-growing softwood forest estates.

1840. 57 IB5 OMER S.E. "Forestry and Woodworking Industry in Sudan (statistics)." Drvna Ind, Vol. 30, No. 3 (1979) In Serbo-Croatian (Roman). Pages 77-80. Cited in Bibliography of Agriculture Vol. 45, No. 3.

1841. 57 IB5 PANT M.M. "Economic and Social Costs and Benefits of Forestry in Tropical Regions." Printed at the Forest Research Institute and Colleges, Dehra Dun and 400 copies submitted to the XI Commonwealth Forestry Conference, Trinidad and Tobago (1980).

1842. 57 IB5 PERHUNTANI P. "Forest Management on Java in the Development Era." Ned. Bosbouw. Tijdschr., Vol. 52, No. 6 (1980), pages 153-165. Cited in Bibliography of Agriculture Vol. 44, No. 11/12.

1843. 57 IB5 PETERS F.H. "Forestry in Developing Countries." Ned. Bosboue. Tijdschr., Vol. 52, No. 6 (1980) In Dutch. Pages 142-145. Cited in Bibliography of Agriculture Vol. 44, No. 11/12.

1844. 57 IB5 SADAR V. "Environmental Protection from the Viewpoint of the Correct Utilization of Forest Space." Gozdar. Vestn. Slov. J. For., Vol. 37, No. 5 (1979) In Slovenian. Pages 205-213. Cited in Bibliography of Agriculture Vol. 45, No. 2.

1845. 57 IB5 SALEM B. BEN "Arid-Zone Forestry - Where There Are No Forests and Everything Depends on Trees." Unasylva, Vol. 32, No. 128 (1980), pages 16-18. Desert peoples, whom outsiders might consider "primitive," come to terms with their environments through cohesive social systems which enable them to create and organize farming appropriate to their land and climate.

1846. 57 IB5 SCHWAAR J. "Humid Forests of Juan Fernandez (Chile)." Phytocoenologia, Vol. 6 (1979) In German. Pages 514-523. Cited in Bibliography of Agriculture Vol. 44, No. 9/10.

1847. 57 IB5 TAYLOR GEORGE F. II. "The Forestry/Agriculture Interface: Some Lessons from Indian Forest Policy." Commonwealth Forestry Review, Vol. 60, No. 1 (1981), In English with English, French and Spanish summaries. pages 45-52. The relationship between forestry and agriculture is an important facet of forestry development in many parts of the Third World. Using the development of forestry in India, this paper describes the multi-faceted contribution of forestry to agriculture and demonstrates the need for clearly defined policy direction with regard to the forestry/agriculture interface.

1848. 57 IB5 THOMASIUS H. "The Forests of the Socialist Republic of Vietnam." Petermapns Geogr. Mitt., Vol. 124, No. 1 (1980) In German. Pages 23-46. Cited in Bibliography of Agriculture Vol. 44, No. 11/12.

1849. 57 IB5 YINGVANSIRI THANIT "Present Situation of Monsoon Forest in Thailand and Its Reforestation Problem." Proceedings, XVII IUFRO World Congress. Interdivisional. (1981), pages 50-55. Forest resources in Thailand are diminishing at a rate of 10 percent per annum. Reforestation activities are too small and too slow to cope with the existing circumstances. Revised and definite national

forest policy is needed to accelerate reforestation activities as well as to preserve the remaining natural forest. Concerted research effort is now being re-organized to solve the reforestation problems of the country.

1850. 57 IC ANDREASON O. "Regulatory Requirements of Commercial Forestry." Tidskr. Sver Skogvardsforb Vol. 77, No. 2 (1979) In Swedish. Pages 81-86. Cited in Bibliography of Agriculture Vol. 44, No. 3/4.

1851. 57 IC BLUDOVSKY Z. "Goals of Forestry Management Systems." Lesn Prace, Vol. 58, No. 3 (1979) In Czech. Pages 101-105. Cited in Bibliography of Agriculture Vol. 45, No. 3.

1852. 57 IC CORTNER HANNA J., SCHWEITZER DENNIS L. "Political-Institutional Values in Quantitative Models for Regional Landscape Planning." In, Regional Landscape Planning, Proceedings of 1981 Annual Meeting of the American Society of Landscape Architects. (1981), pages 81-89. Focuses on the land planning process of the U.S. Forest Service and explores political-institutional influences affecting development and use of quantitative models in regional landscape planning, specifically: value judgements and political-institutional factors which influence the basic data used in analytical models; and, the manner in which political-institutional factors determine how analytical results are used to make planning and implementation decisions.

1853. 57 IC CULHANE PAUL J. Public Lands Politics, Interest Group Influence on the Forest Service and the Bureau of Land Management. Resources for the Future, Inc., Johns Hopkins Univ. Press (1980), 412 pages. The federal government holds one third of the nation's land area, with two agencies, the Bureau of Land Management (BLM) and the Forest Service, managing most of it. These agencies manage to reinforce their objectives by balancing the conflicting pressures exerted on them by such traditional users as stockmen and the forest products industry against that brought to bear by environmentalists and recreationists. Drawing upon interviews with local agency officials and key interest-group leaders in three regions of the western U.S., the author uses a formal model of interest-group influence to empirically measure the extent to which groups really affect key public lands policies, such as timber sales levels and wilderness recommendations.

1854. 57 IC DUNN B. ALLEN · Characteristics, Enactment, and Structural Effectiveness of South Carolina's Forest policy. Dept. of Forestry Technical Paper No. 12, Clemson Univ., Clemson, South Carolina (1980), 23 pages. The applicability of the state's policies vests formulated organizations with administrative authority. The General Assembly has structured a number of commissions, boards, and agencies and empowered each with management, development, preservation, and/or protection authority. The primary responsibility for the forest resources of the state has been delegated to a Commission of Forestry. The scope of South Carolina's policies related to forest management encompasses the primary resources of forest, wildlife, water, soil, and air; and for each of these, policy guidelines have been established.

1855. 57 IC FARRON J.P. "Most Important Aims of Forest Policy and Silviculture in the Jura Mountains." J. For. Suisse Schweiz. Z. Forstwes., Vol. 130, No. 1 (1979) In French. Pages 18-25. Cited in Bibliography of Agriculture Vol. 45, No. 2.

1856. 57 IC FUKUOKA KATSUYA "Evaluation of Forest Resources and Assets in the National Accounting." Proceedings, XVII IUFRO World Congress. Division 4. (1981), pages 271-283. Clarifies the theory and method used to evaluate forest assets and the national accounting system.

1857. 57 IC GUILLARD J. "French Forest Policy as Seen from across the Channel." Revue Forestière Française, Vol. 33, No. 4 (1981) In French. Pages 335-336.

1858. 57 IC HOLMES G.D. "Making the Most of British Uplands. Relating Forestry to Farming." Occasional Paper No. 6, Forestry Commission, UK. (1980), pages 207-226. Cited in Forestry Abstracts Vol. 42, No. 7.

1859. 57 IC HUGUET LOUIS "A Foreign Forestry Policy for France." Bois et Forets des Tropiques, No. 191. (1980) In French with English and Spanish summaries. Pages 3-19. Deals with moist tropical forests of Asia, Africa, and Latin America and the timber they produce, large quantities of which are imported by France.

1860. 57 IC KANKA MILAN "Conception of the Lesoprojekt and of Forest Management." Lesnicky Časopis, Vol. 27, No. 4 (1981) In Czech with English summary. Pages 309-315. Development of forest management under the forestry laws in the Slovak Socialist Republic.

1861. 57 IC KIRALYI E. "The Control of Forestry and Forest Industries." Erdo, Vol. 28, No. 5 (1979) In Hungarian. Pages 207-214. Cited in Bibliography of Agriculture Vol. 45, No. 1.

1862. 57 IC KRMPOTICH STEVE "How Regional Planners Use Inventory Information." Proceedings of Minnesota Forest Resource Inventory Conferences. USDA Forest Service General Technical Report NC-64. (1981), pages 89-111.

1863. 57 IC KRNJAK T. "Improvement of Forest and Forest Land Management in the Karst Region in the Light of the Application of the Forest Law in the Socialist Republic of Croatia." Sumar List, Vol. 103, no. 1/3 (1979) In Serbo-Croation (Roman). Pages 25-28. Cited in Bibliography of Agriculture Vol. 45, No. 2.

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usefully contribute to balance of payments, rural employment and strategic stockpile needs while positively harming water resources and countryside amenities.

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1877. 57 ID1A KROTH W. "Principles for Equitable and Adequate Forest Taxation." Proceedings, XVII IUFRO World Congress. Division 4. (1981), pages 285-298.

1878. 57 ID1A MILNE G.R. Estimates of the Taxes and Fees Paid by the Newfoundland Forest Industry Firms and Employees: 1974 to 1978. Environment Canada, Forestry Service, Newfoundland Forest Research Centre, Information Report N-X-192 (1981), 31 pages. "Taxes"refer to those collected both by provincial and federal governments while "fees" refer to provincial forestry fees assessed by the Department of Forest Resources and Lands. The forest industry and employees paid an average of approximately $31.7 million per year in combined taxes and fees. Each year, the provincial government collected an average of $16.7 million in taxes and $0.7 million in fees. The federal government collected an average of $14.3 million in taxes annually. Federal revenues exhibited a moderate response to fluctuating market conditions while provincial revenues increased annually during the study period.

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its societal functions. The advantages of socialism were proved by all the changes and development of forest management in the past 35 years. It is confirmed that all activities in the socialist society carried out for the whole society are beneficial for the workers themselves.

1887. 57 ID4 HERTIG H.P. "Attitude of the Population to Problems of Forests and Forest Economy." J.For. Suisse. Schweiz Z. Forstwes., Vol. 130, No. 8 (1979) In German. Pages 591-620. Cited in Bibliography of Agriculture Vol. 45, No. 2.

1888. 57 ID4 PANT M.M. "Women's Right of Equality - Some Views." Case studies prepared for the Fao Seminar on the Role of Women in Community Forestry held at the F.R.I. & Colleges, Dehra Dun (1980).

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1890. 57 ID4 ZUPANCIC M. "What the Public Thinks about the Significance of Forests and Forestry (Slovenia)." Sodobno Kmetijstvo, Vol. 12, No. 10 (1979) In Slovenian. Pages 443-445. Cited in Bibliography of Agriculture Vol. 44, No. 9/10.

1891. 57 ID6 GLUCK P. "Forest Management and Publicity." Allg. Forstz., No. 1/2 (1979) In German. Pages 10-12. Cited in Bibliography of Agriculture Vol. 45, No. 2.

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1894. 57 ID6 ZUPANCIC M. "Forestry and Public Relations." Gozdar. Vestn. Slov. J. For., Vol. 37, No. 5 (1979) In Slovenian. Pages 219-222. Cited in Bibliography of Agriculture Vol. 45, No. 2.

1895. 57 IE BITTIG B. "Goals, Problems and Outlooks in Forest Research in Switzerland." J. For. Suisse. Schweiz. Z. Forstwes., Vol. 131, No. 1 (1980) In German. Pages 30-44. Cited in Bibliography of Agriculture Vol. 45, No. 2.

1896. 57 IE DE STEIGUER J. EDWARD, MASSEY JOSEPH G. "Forestry Research Priorities of Various User Groups." Forest Products Journal, Vol. 31, No. 10 (1981), pages 86-88. Nonparametric statistical procedures were used to compare forestry research priorities of users from government, professional societies, industry, and environmental and consumer groups. Research priorities of industry were clearly at odds with those of the other groups. Special care must be taken to ensure that the views of industrial users are adequately represented in research planning. Results will be useful in obtaining representative public involvement for the planning of publicly administered forestry research.

1897. 57 IE EK ALAN R., ROSE DIETMAR W. "How the University of Minnesota, College of Forestry Uses Inventory Information." Proceedings of Minnesota Forest Resource Inventory Conferences. USDA Forest Service General Technical Report NC-64. (1981), pages 61-73. Use of inventory data for research and in meeting the objectives of projects sponsored by public and private groups. Emphasis for most projects is on economic analyses. Shortcomings and opportunities for the forest survey, its users, and the data base.

1898. 57 IE KULAKOV A.K. "From Experiment to Practice." Lesn. Prom-st, No. 6 (1980) In Russian. Pages 16-17. Cited in Bibliography of Agriculture Vol. 44, No. 11/12. Activities of the Siberian Scientific-Research Institute of Forest Industry.

1899. 57 IE LUNDGREN ALLEN L. "Research Needed to Improve Management Decisions for Tomorrow's Forests." Proceedings, XVII IUFRO World Congress. Division 4. (1981), pages 399-408.

1900. 57 IF ARVESEN A. "Beginning Professional (forestry) Education." Tidskr. Skogbruk Vol. 87, No. 2 (1979) In Norwegian. Pages 93-99. Cited in Bibliography of Agriculture Vol. 44, No. 3/4.

1901. 57 IF CASE PAMELA J., FERRELL WILLIAM K., HAGESTEDT RICHARD "Forestry Curriculum Change: What Do Professionals in the West Think?" Journal of Forestry, Vol. 79, No. 10 (1981), pages 667-670. Results of a questionnaire survey of experienced public and private foresters showed that, as foresters advanced, they spent increasingly more time dealing with people (administration, organization) and increasingly less time at conventional tasks (logging, inventory), and they enjoyed greater diversity in their jobs. Foresters expected these trends to accelerate in the future and, correspondingly, felt deficient in the disciplines that would support the increased activities they foresaw in their professional futures. Survey findings suggested the need for some changes to broaden traditional forestry curricula.

1902. 57 IF HAMPTON LEONARD A., STAUFFER A.J. "Continuing Education Needs of Foresters." Southern Journal of Applied Forestry, Vol. 5, No. 3 (1981), pages 166-168.

1903. 57 IF HULA J. "Education in Special Forest Schools." Lesn. Prace, Vol. 58, No. 3 (1979) In Czech. Pages 129-130. Cited in Bibliography of Agriculture Vol. 45, No. 3.

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1905. 57 IF JONSSON K. "Forestry Education in Sweden." Tidskr. Skogbruk Vol. 87, No. 2 (1979) In Swedish. Pages 81-84. Cited in Bibliography of Agriculture Vol. 44, No. 3/4.

1906. 57 IF MCMANUS KAREN R., JONES J. GREG "Women in SAF - Survey Results and Analyses." Journal of Forestry, Vol. 79, No. 11 (1981), pages 740-742. A 1979 nationwide sample survey of members of the Society of American Foresters (SAF) found few differences between male and female foresters with regard to education, salaries, career aspirations, geographic locations, employment sectors, or job satisfaction. A higher percentage of females were unemployed. Those who were employed supervised fewer employees and indicated more job discrimination than males. Female respondents were more likely to be single or married with no children.

1907. 57 IF PANT M.M. "Need for Inducting Fair Sex in Forest Service." Presented at the 2nd Forest Conference, Dehra Dun (1980).

1908. 57 IF PEDERSEN A.M. "Danish Forestry Education." Tidskr Skogbruk Vol. 87, No. 2 (1979) In Danish. Pages 85-87. Cited in Bibliography of Agriculture Vol. 44, No. 3/4.

1909. 57 IF PINTER F. "Experiences in the Postgraduate Education of Forest Managers." Erdo, Vol. 28, No. 3 (1979) In Hungarian. Pages 116-118. Cited in Bibliography of Agriculture Vol. 45, No. 1.

1910. 57 IF SCHOULTZ H. "Professional Forestry Education in Finland." Tidskr. Skogbruk Vol. 87, No. 2 (1979) In Swedish. Pages 89-92. Cited in Bibliography of Agriculture Vol. 44, No. 3/4.

1911. 57 IF THOMSEN J. "The Role of the Danish Forestry Society in Forest Politics." Tidsskr. Dan. Skovforen, Vol. 65, No. 1 (1980) In Danish. Pages 30-60. Cited in Bibliography of Agriculture Vol. 44, No. 11/12.

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2012. 57 IIIA5A BARTELHEIMER P. "Economics of Recreation Forestry and Human Environment." Proceedings, XVII IUFRO World Congress. Division 4. (1981), pages 51-56. Forests all over the world have to meet a growing demand for timber and for social outputs that are not subject to direct measurement in monetary terms. The environmental impacts of forestry are to be identified and evaluated to find the optimal multiple use management and the best allocation of land.

2013. 57 IIIA5A CHRISTENSEN JENS BJERREGAARD "Economics of Recreation Forestry in Scandinavia." In, Proceedings XVII IUFRO World Congress, Division 4 (1981), pages 481-494.

2014. 57 IIIA5A CORDELL H. KEN "The Status and Future of Outdoor Recreation on the South's Private Forests." In, Recreation in the South's Third Forest. 28th Annual For. Symp. La. State Univ. (1979), pages 5-31.

2015. 57 IIIA5A LUST N. "Problems of Forest Recreation in Flanders." Bull. Soc. R. For. Belg. 86, No. 5 (1979) In Dutch. Pages 205-219. Analysis of forest recreation in Flanders, a densely populated and industrialized region with a forest index of less than 8.5 percent. The norm of one ha per 100 inhabitants is proposed. Infrastructure of the recreation forest should be as simple as possible. Material production and ecological functions of the forest must not be neglected.

2016. 57 IIIA5A LUST N., VAN MIEGROET M. "Forestry and Recreation." Tweede Vlaams Wetenschappelijk Congres voor groenvoorziening. Leuven. Sektie III, No. 2 (no date given) In Dutch. Pages 291-338.

2017. 57 IIIA5A SMALL D. "Recreational Potential of the Upland Forests." Occasional Paper No. 6, Forestry Commission, UK. (1980), pages 135-159. Cited in Forestry Abstracts Vol. 42, No. 7.

2018. 57 IIIA5A VYSKOT I.. "Recreational Effect of Spruce Monoculture of Various Structures." Lesnictvi, Vol. 27, No. 5 (1981) In Czech with Russian, English, German, and French abstracts. Pages 439-460. The structure of commercial forest stands has been optimized with regard to production so that no optimum structure for recreation is offered. The society requires multipurpose forestry management to bring into harmony the productive and non-productive functions of the forest.

2019. 57 IIIA5B DRIVER B.L., KNOPF RICHARD C. Some Thoughts on the Quality of Outdoor Recreation Research and Other Constraints on Its Application. Reprinted by K. Chilman (ed.), Social Research in National Parks and Wilderness Areas. USDI National Park Service, Southeast Regional Office, Atlanta,Ga. (1981), pages 85-99. Outdoor recreation research would be applied more if it were of higher quality. Evaluation of past outdoor recreation research, especially that having a social-behavioral orientation constitutes one of the two major sections of this paper. In the second section, two additional constraints on research application are considered, the professional recognition-reward systems within which managers and researchers work, and the basic personality differences between managers and researchers.

2020. 57 IIIA5B HAAS G.E., DRIVER B.L., BROWN P.J. "Measuring Wilderness Recreation Experiences." In Proceedings, Wilderness Psychology Group Annual Conference. Univ. of New Hampshire, Durham. (1980), pages 20-40. Psychological outcomes of wilderness use and five groups of users associated with the outcomes are identified. Discriminant function analysis was used to show how closely the five groups are related and which outcomes contribute most to forming them. A methodology for identifying user groups for planning and management purposes is demonstrated.

2021. 57 IIIA5B JUBENVILLE ALAN "Research Recreationshed: an Experimental Program to Measure Changing Social Values." Proceedings, XVII IUFRO World Congress. Division 4. (1981), pages 519-524. Research recreationshed: social values are determined through monitoring, and specific, controlled experiments are done to test the effects of particular recreation management programs on these values.

2022. 57 IIIA5C POLENO Z. "Management of Recreational Forests." Lesnictvi Cesk Akad Zemed Ustav Vedeckotech Inf Zemed, Vol. 25, No. 10. (1979) In Czech. Pages 945-958. Cited in Bibliography of Agriculture Vol. 45, No. 3.

2023. 57 IIIA5D DASKE D. "Forests and Children." Revue Forestière Française, Vol. 33, No. 1 (1981) In French. Pages 79-83.

2024. 57 IIIA5D ROSSI D., EPP D.J. Estimating the Demand for Outdoor Recreation, a Review of the Literature. Bull. Pa. Agric. Exp. Sta. (1979), 8 pages. Cited in Bibliography of Agriculture Vol. 44, No. 3/4.

2025. 57 IIIA5D TRAKOLIS D., HARDING D.M. "Visitor Satisfaction and Attitudes to Management of Forest Recreation Areas in North Wales." Effects of recreational use on the resource, visitors' perceptions and attitudes, and the relationships between carrying capacity and management objectives were explored in four forest recreation areas in North Wales during the summer of 1977. Visitors derived a high level of satisfaction from their visit to the study areas and the majority of visitors did not consider the provision of additional facilities necessary as a means of increasing their enjoyment. Most visitors would accept some kind of control if use of the areas was heavy. Such findings are important to managing agencies when determining what facilities should be provided and what actions should be taken to adequately manage the resource and the visitors.

2026. 57 IIIA5D VERTRIEST I. Forest and Living Space for the Child. Thesis. Research Center of Silviculture. State University Ghent. (1979) In Dutch. 151 pages. Pedagogical evaluation of forest recreation for children. The author studies by direct inquiry the degree of information on the forest that children between the ages of 6 and 15 possess, and evaluates their motivation for visits to the forest.

2027. 57 IIIA5D WEST PATRICK C. On-Site Social Surveys and the Determination of Social Carrying Capacity in Wildland Recreation Management. USDA Forest Service Research Note NC-264 (1981), 4 pages. On-site surveys of users may fail to measure crowding accurately because long time users who knew the area before it became crowded leave and would not be included in current on-site survey samples. Results from a limited test at the Sylvania Recreation Area in Michigan do not support this displacement thesis. Further research is needed in other settings.

2028. 57 IIIA5E CAMPBELL GENE E., COUNTRYMAN DAVID W. "Comparing Estimated Wilderness Costs among National Forests." Journal of Forestry, Vol. 79, No. 9 (1981), pages 605-607. Marginal cost

curves developed from linear programming models can depict relative wilderness costs among forests and thus assist society in comparing economic trade-offs, making wilderness selections cost-effective, and isolating those forests where wilderness decisions have greatest impact.

2029. 57 IIIA5E DRAEGER WILLIAM C., PETTINGER LAWRENCE R. "Remote Sensing: A Tool for Park Planning and Management." Parks, Vol. 6, No. 3 (1981), pages 1-6.

2030. 57 IIIA5E FISH C. BEN, BURY RICHARD L. "Wilderness Visitor Management: Diversity and Agency Policies." Journal of Forestry, Vol. 79, No. 9 (1981), pages 608-612. Since its inception in 1964, the National Wilderness Preservation System has been managed without formal coordination among its three major agencies (the USDA Forest Service, the National Park Service, and Fish and Wildlife Service of the U.S. Dept. of the Interior). This diversity provides a desirable range of opportunities for activities appropriate to wilderness use, but coordination of agency efforts seems desirable and would enhance efforts for attainment of all wilderness system objectives.

2031. 57 IIIA5E GERASIMOV I.P., PREOBRAZHENSKII V.S. "National Parks As a Form of Territory Utilization and Management for Recreation and Tourist Activities." Izv. Akad. Nauk. SSSR Ser. Geogr., No. 5 (1979) In Russian. Pages 19-24. Cited in Bibliography of Agriculture Vol. 44, No. 7/8.

2032. 57 IIIA5E LUCAS ROBERT C. Redistributing Wilderness Use through Information Supplied to Visitors. USDA Forest Service Research Paper INT-277. (1981), 15 pages. Evaluation of an attempt to influence visitors to redistribute themselves to more lightly used trail heads through an informational brochure. Use patterns did not change in desired ways, although visitors who obtained the brochure before they arrived at the trailhead reported their choices of location were influenced.

2033. 57 IIIA5E TEEGUARDEN DENNIS E. "A Method for Designing Cost-Effective Wilderness Allocation Alternatives." Forest Science, Vol. 27, No. 3 (1981), pages 551-566. Marginal cost of additional wilderness in dollars per acre and per visitor day is relatively negligible up to about 2 million acres. Opportunity cost then increases to a maximum of 74 dollars per potential visitor day if RARE II areas receive the same average level of use as existing wilderness areas. Ecosystem representation goals add to opportunity costs, but diminish to zero for a wilderness allocation goal exceeding three million acres. Results show that of the six RARE II wilderness allocation alternatives that could be evaluated, more are cost effective relative to the least-cost alternatives. The same wilderness area can be provided at substantially less cost; or alternatively, more roadless area could be allocated to wilderness at the same cost.

2034. 57 IIIA5G ANDERSON LINDA M. "Land Use Designations Affect Perception of Scenic Beauty in Forest Landscapes." Forest Science, Vol. 27, No. 2 (1981), pages 392-400. Ninety color slides of

Northern Arizona ponderosa pine forests were rated for scenic quality in conjunction with six land use designations by 106 college students. The labels: commercial timber stand, leased grazing range, national forest, national park, recreation area, and wilderness area; significantly affected judgments of scenic quality, with wilderness area and national park consistently elevating perceived scenic quality and commercial timber stand and leased grazing range consistently reducing it.

2035. 57 IIIA5G OHYAMA H., HASHIZUME N. "Analysis of Trees Density on Greenery Space." Kenkyu Hokoku Bull. Fac. Agric. Meiji Univ. Meiji Daigaku Nogaku-bu, No. 47 (1979) In Japanese. Pages 11-25. Cited in Bibliography of Agriculture Vol. 44, No. 9/10. Conservation and landscape planning of forests and parks in Japan.

2036. 57 IIIA5G ROZSNYAY Z. "Thoughts on Forest Beautification and Forest Esthetics. 1." Forstarchiv., Vol. 50, No. 4 (1979) In German. Pages 72-74 (continued). Cited in Bibliography of Agriculture Vol. 45, No. 2.

2037. 57 IIIA5G TANDY C.R.V. "The Landscape Design of Hill Forests." Occasional Paper No. 6, Forestry Commission, UK. (1980), pages 121-133. Cited in Forestry Abstracts Vol. 42, No. 7.

2038. 57 IIIA5H LUCAS ROBERT C., KOVALICKY THOMAS J. Self-Issued Wilderness Permits as a Use Measurement System. USDA Forest Service Research Paper INT-270 (1981), 18 pages. Self-issued permits appear to have advantages over voluntary trail registers for measuring use.

2039. 57 IIIA5H SHECHTER MORDECHAI, LUCAS ROBERT C. Simulation of Recreational Use for Park and Wilderness Management. Resources for the Future, Inc., Johns Hopkins Univ. Press (1978), 240 pages. If the unique recreational character of the wilderness experience is not to be lost, and if these areas are to compete with demands for other uses of the land, their optimal carrying capacity and yield must be determined. Shechter and Lucas detail the results of a large-scale testing of a model that simulates the travel behavior of wilderness users in one of the most densely used areas in the National Forest Wilderness System, the Desolation Wilderness of California.

2040. 57 IIIA5I DRIVER B.L., HARRIS CHARLES C. "Improving Measurement of the Benefits of Public Outdoor Recreation Programs." Proceedings, XVII IUFRO World Congress. Division 4. (1981), pages 525-537.

2041. 57 IIIA5I GUNDERMANN EGON "Evaluation of the Recreation Evaluation Methods Used in Western Europe." Proceedings, XVII IUFRO World Congress. Division 4. (1981), pages 513-518.

2042. 57 IIIA5I ILLYÉS BENJAMIN, KERESZTESI BÉLA "Economic Assessment of the Recreational Function of Forests in East European Countries." Proceedings, XVII IUFRO World Congress. Division 4. (1981), pages 495-511.

2043. 57 IIIA5I IMANAGA MASAAKI "Economics of the Recreational Function of Forests in Japan." Proceedings, XVII IUFRO World Congress. Division 4. (1981), pages 475-480.

2044. 57 IIIA5I KAISER H. FRED, MARCHETTA JOANNE S. "Evaluation of Outdoor Recreation Evaluation Techniques Being Used in North America." Proceedings, XVII IUFRO World Congress. Division 4. (1981), pages 468-474.

2045. 57 IIIA6 ALEEM A. "A Review of Watershed Management Works Carried Out in Pakistan till June 1978." Pak. J. For., Vol. 29, No. 1 (1979), pages 53-60. Cited in Bibliography of Agriculture Vol. 44, No. 9/10.

2046. 57 IIIA6 GREGERSEN H.M., BROOKS K. "Economic Analysis of Watershed Projects: Special Problems and Examples." In, Economic Analysis of Forestry Projects: Readings. FAO Forestry Paper No. 17, Supp. 2 (1980), pages 133-176. Cited in Forestry Abstracts Vol. 42, No. 7.

2047. 57 IIIA7 MORE THOMAS A. The Demand for Nonconsumptive Wildlife Uses: A Review of the Literature. USDA Forest Service General Technical Report NE-52 (1979), 16 pages. Nonconsumptive use includes general wildlife observation, birdwatching, birdfeeding, wildlife and bird photography and a number of related activities.

2048. 57 IIIA7 RIEDER M. "Silviculture and Hunting in Thurgau Canton.", J. For. Suisse. Schweiz. Z. Forstwes., Vol. 130, No. 1 (1979) In German. Pages 77-80. Cited in Bibliography of Agriculture Vol. 45, No. 2.

2049. 57 IIIA7 SHEFFIELD RAYMOND M. Multiresource Inventories: Techniques for Evaluating Nongame Bird Habitat. USDA Forest Service Research Paper SE-218. (1981), 28 pages. Procedures for evaluating the suitability of forest lands for breeding habitat of individual nongame bird species and entire avian communities. Habitat data are derived from the South Carolina multiresource inventory, and nine nongame bird species are evaluated as examples.

2050. 57 IIIA8 BARTENSTEIN FRED "The Future of Urban Forestry." Journal of Arboriculture, Vol. 7, No. 10 (1981), pages 261-267.

2051. 57 IIIA8 DWYER JOHN F. "Managing Urban Forests for Recreation." Trends, Vol. 17, No. 4 (1980), pages 11-14. Urban recreation resource managers face the challenge of trying to expand their future services without the corresponding increases in available resources.

2052. 57 IIIA8 WAGAR J. ALAN "Urban Forestry Research." Proceedings of the California Symposium on Urban Forestry, 1978. Berkeley, California: Univ. of Calif. (1980), pages 62-63. Summarizes urban forestry research assignments within the Forest Service, with emphasis on the role of the Pacific Southwest Forest and Range Experiment Station.

2053. 57 IIIA8 WENDLING ROBERT C., GABRIEL SAMUEL J., DWYER JOHN F., BUCK RICHARD L. "Forest Preserve District of Cook County, Illinois." Journal of Forestry, Vol. 79, No. 9 (1981), pages 602-605. This district's growth and development reflect strong public support for urban forest preservation, environmental education, and outdoor recreation. Management is strongly influenced by heavy use, large

populations in nearby areas, and the high value that urbanites place on forest and related resources.

2054. 57 IIIB1 BARTUNĚK J. "Economic Estimation of Production of Spruce Forests." From, Stability of Spruce Forest Ecosystems, International Symposium, Univ. of Agric., Brno, Czechoslovakia (1980), pages 513-517.

2055. 57 IIIB1 GESSEL S.P. "Impacts of Modern Forestry on Continuing Forest Productivity." Proceedings, XVII IUFRO World Congress. Interdivisional. (1981), pages 2-20. Projected consumption of forest products throughout the world and a declining forest land base dictates greater production from each unit of forest land. Forest management practices are being directed toward this goal. Some practices designed to achieve greater immediate productivity are questioned because of possible impact on continuing productivity.

2056. 57 IIIB1 HYPPÖNEN M. "Profitability of Some Stand Growing Alternatives in the State Forests of Northern Finland." Folia Forestalia 463 (1981) In Finnish. Pages 1-34. Profitability of three programs of various intensity in different research areas and mineral site types in the state forests of Northern Finland. Present net value and internal rate of return are used as a profitability criteria.

2057. 57 IIIB1 PLOCHMANN RICHARD "Impact of Forestry on Forestry Itself from an Economic and Socio-Economic Point of View." Proceedings, XVII IUFRO World Congress. Interdivisional. (1981), pages 33-48. Determines and discusses the economic and socio-economic impacts and consequences of different sustained production forest management systems on forestry itself. Essential issues for sustained productivity are: (1) not to impair the circulation of nutrients and the nutriment chain; (2) to conserve and restore forests capable of resisting disturbances and of regenerating themselves after interference; (3) to open the opportunity of utilizing fully the production capacity; (4) to create a forest structure and composition which permits a flexible form of management capable of adjusting itself to changing demands of society; and to practice on-site treatments that do not have a detrimental effect on off-site values and adjacent ecosystems.

2058. 57 IIIB1 RUPRICH JIŘÍ "Economic Efficiency in the Development of Spruce Stands in Czechoslovakian Territory." From, Stability of Spruce Forest Ecosystems, International Symposium, Univ. of Agric., Brno, Czechoslovakia (1980), pages 505-511.

2059. 57 IIIB1 WUNSCH KLAUS A Yield Model Independent of Thinning Regime. Verified for Norway Spruce. Report from Dept. of Forestry, Series 2, No. 11, Denmark. (1981) In Danish with English summary and subtexts. 73 pages.

2060. 57 IIIB3 FLICK WARREN A., HORTON DONALD A. "Virginia's Reforestation of Timberlands Program: An Economic Analysis of the First Six Years." Southern Journal of Applied Forestry, Vol. 5, No. 4 (1981), pages 195-200. Analysis shows the program is

efficient. A benefit-cost analysis of about 3.5 is expected. Rural areas of eastern Virginia will benefit most. The sensitivity of the results to major assumptions is discussed. Landowners, forest industries, and rural laborers are major beneficiaries.

2061. 57 IIIB3 HALLETT R.D., MURRAY T.S. Recent Developments and Current Practices in Forestation in Canada. Canadian Forestry Service, Information Report M-X-116 (1980), 22 pages. In 1968 it was projected that 200,000 ha would be forested annually; it is now evident, with the expansion of forestation programs, that this will be surpassed. At the Canadian Forest Regeneration Conference (1977) it was recognized that forest renewal was inadequate and several needs and deficiencies of forestation were highlighted. New policies and programs are being implemented in most provinces to effectively deal with forest renewal problems. One potential problem relates to the use of herbicides for protection of these forests.

2062. 57 IIIB3 HOLLANDER H., SCHELLER D., BRINKHOFF W. "Opinions and Measures of Local Government Concerning Reforestation." Aus Walde Mitt Niedersaechs Landesforstverwalt (1979) In German. Pages 120-146. Cited in Bibliography of Agriculture Vol. 45, No. 3.

2063. 57 IIIB3 RODRIGUES M., CARVALO M.A., STELIAM S., PINTO A.B. "Reforestation: More Than 3.2 Million Hectares of Forest Land (Brazil)." Agric Hoje, Vol. 5, No. 55 (1979) In Portuguese. Pages 28-32. Cited in Bibliography of Agriculture Vol. 44, No. 11/12.

2064. 57 IIIB3 N.C. State University-Industry Cooperative Tree Improvement Program. Twenty-Fifth Annual Report. School of Forest Resources, North Carolina State Univ., Raleigh, NC (1981), 61 pages.

2065. 57 IIIB5 KAO CHIANG "Efficient Formulation of Linear Programming Approach to Optimizing the Conversion to Sustained Yield." Quarterly Journal of Chinese Forestry, Vol. 14, No. 3 (1981) In Chinese with an English summary. Pages 1-8. Mathematical method to derive a system with n+p constraints only. Compared with Nautiyal-Pearse's model the benefits are easy formulation and less computer time and memory space.

2066. 57 IIIB5 KLEMPERER W. DAVID "Is Sustained Yield an Ethical Obligation in Public Forest Management Planning?" Proceedings, XVII IUFRO World Congress. Division 4. (1981), pages 421-432.

2067. 57 IIIB5 MALCOLM D.C. "Forest Structure for Continued Timber Production." Occasional Paper No. 6, Forestry Commission, UK. (1980), pages 99-119. Cited in Forestry Abstracts Vol. 42, No. 7.

2068. 57 IIIB5 MOISEEV N.A., SINITSIN S.G. "Sustained Yield as Ethical Obligation in Forest Management Planning." Proceedings, XVII IUFRO World Congress. Division 4. (1981), pages 409-420.

2069. 57 IIIB5 PANT M.M., ANSARI M.Y. "The Concept of Forest Rotation." Indian Journal of Forestry, Vol. 3, No. 2 (1980), pages 165-173.

2070. 57 IIIB5 RANDALL ROBERT M., SASSAMAN ROBERT W. Identifying and Evaluating Environmental Impacts Associated with Timber Harvest

Scheduling Policies. USDA Forest Service General Technical Report PNW-81. (1979), 20 pages. Expected impacts on the ecosystem and nontimber benefits (people's use of the resources: recreation, hunting, fishing, swimming, etc.) resulting from alternative timber harvest scheduling policies are identified and evaluated for the Mount Hood National Forest. Environmental criteria are established and used in evaluations of timber harvest and management data.

2071. 57 IIID1 KULA E. "Forest Fires in the CSSR." Lesnictvi, Vol. 27, No. 6 (1981) In Czech with Russian, English, German, and French abstracts. Pages 545-566. Between 1974 and 1978 there were 1703 forest fires in the territory of the CSSR. Considering the trends of development in the society, recreational use of the forests will become more frequent, which will increase fire hazards. Complete exclusion of steam engines on the railroads in the CSSR has not removed the chances of forest fires along the railroads. Safety must be stressed.

2072. 57 IIID4 DOUTRELOUX J. "Damage Caused by Deer in the Landes Forests; Its Description and Evaluation." Revue Forestière Française, Vol. 33, No. 1 (1981) In French. Pages 61-78.

2073. 57 IIID4 JACOBI WILLIAM R., ANDERSON ROBERT L., COST NOEL D. Multiresource Inventories: Procedures for Assessing the Damage Caused by Insects and Diseases. USDA Forest Service Research Paper SE-221 (1981), 11 pages. Valuable data on damage to trees by insects and diseases are being gathered in the forest surveys of Southeastern states. The types of damage tallied in these inventories are described, along with examples of the ways in which the data can be tabulated and interpreted.

2074. 57 IIIE BRAND GARY J. Simulating Timber Management in Lake States Forests. USDA Forest Service General Technical Report NC-69. (1981), 25 pages. Management subsystem to simulate cutting in Lake States forest types. Can be used to test the effect of alternate management strategies.

2075. 57 IIIE BRODNJAK S. "Total Income in Forestry." Gozdar Vestn. Slov, J. For., Vol. 37, No. 4 (1979) In Slovenian. Pages 169-174. Cited in Bibliography of Agriculture Vol. 45, No. 2.

2076. 57 IIIE HEIKINHEIMO LAURI, LEHIKOINEN TAPIO "The Stumpage Model." Proceedings, XVII IUFRO World Congress. Division 4. (1981), pages 257-270. Simplified model of price and income determination in the forest sector.

2077. 57 IIIE KIRALYI E. "Pertinent Problems of Forest Management in Hungary." Erdo, Vol. 28, No. 12 (1979) In Hungarian. Pages 549-558. Cited in Bibliography of Agriculture Vol. 45, No. 2.

2078. 57 IIIE LENDERINK H. "Which Management and Production Methods Are Best for Establishing Poplars in the Western Part of the Netherlands." Populier, Vol. 16, No. 2 (1979) In Dutch. Pages 27-33. Cited in Bibliography of Agriculture Vol. 44, No. 9/10.

2079. 57 IIIE MARTON J. "Economical Aspects of Forest Management." Erdo, Vol. 28, No. 8 (1979) In Hungarian. Pages 341-350. Cited in Bibliography of Agriculture Vol. 45, No. 1.

2080. 57 IIIE MARTON J. "Potentialities in Forest Planning." Erdo, Vol. 28, No. 2 (1979) in Hungarian. Pages 57-63. Cited in Bibliography of Agriculture Vol. 45, No. 1.

2081. 57 IIIE MURPHY DENNIS L. Database Management: A Forest Inventory Application. USDA Forest Service, General Technical Report NC-67 (1981), 9 pages. Design and creation of two databases using data from a unit of the fourth Minnesota Forest Inventory and cost effectiveness of each.

2082. 57 IIIE RICHARDSON MARY LOU, BETTERS DAVID R., SAMPSON GEORGE R. Productivity Equations for Forest Vegetation Treatment Projects in the Colorado Forest Range. USDA Forest Service Research Paper RM-230 (1981), 8 pages. Regression equations are presented for various forest vegetation treatment methods that relate labor and equipment time to terrain, area treated, and crew efficiency. Equations are applicable to most Front Range areas. Recommendations are made for improving productivity in vegetation management projects, particularly those required for insect control.

2083. 57 IIIE SAGL WOLFGANG "Business Statistics and Index Figures in Forest Firms." Centralblatt für das Gesamte Forstwesen, Vol. 98, No. 3 (1981) In German with brief English summary. Pages 171-184.

2084. 57 IIIE SLIVKA J. "Probability and Decision-Making in Forestry." Les (Bratisl), Vol. 35, No. 1 (1979) In Slovak. Pages 5-6. Cited in Bibliography of Agriculture Vol. 45, No. 3.

2085. 57 IIIE TISSEVERASINGHE A.E.K. "Timber Utilization in the Tropical Lowland Forests." The Commonwealth Forestry Review, Vol. 60, No. 3 (1981), pages 197-205. Fuller utilization of the species found in these forests will give more flexibility to silviculture and management which may lead to a management system that will ensure adequate natural regeneration and make other options more attractive.

2086. 57 IIIE WALSH J.P. "Silvicultural Costs and Expected Revenue over a Full Production Cycle." Agric. Technol., Vol, 11, No. 1 (1980), pages 6-15. Cited in Bibliography of Agriculture Vol. 44, No. 11/12.

2087. 57 IVA1B BILEK EDWARD M., ELLEFSON PAUL V. "Wood-Based Industry: Trends in Selected Structural and Economic Factors through 1977." Forest Products Journal, Vol. 31, No. 10 (1981), pages 48-54.

2088. 57 IVA1B BLYTH JAMES E. "Minnesota Timber Utilization." Proceedings of Minnesota Forest Resource Inventory Conferences. USDA Forest Service General Technical Report NC-64. (1981), pages 26-37.

2089. 57 IVA1B BLYTH JAMES E., ZOLLNER JACK, SMITH W. Primary Forest Products Industry and Timber Use, Michigan, 1977. USDA Forest Service Resource Bulletin NC-55 (1981), 54 pages. Recent Michigan forest industry trends, timber removals for industrial roundwood in 1977, and production and receipts of pulpwood, sawlogs, and other industrial roundwood products. Reports on associated

logging and primary mill residues and the disposition of mill residue.

2090. 57 IVA1B MULLINS E.J., MCKNIGHT T.S. Canadian Woods Their Properties and Uses. Third Edition. Univ. of Toronto Press. (1981), 389 pages. Canadian wood-using industries and general properties and uses of Canadian woods. Sixteen chapters discuss wood, its processing, and products, and how these products are used today in Canada.

2091. 57 IVA1B O'LAUGHLIN JAY, ELLEFSON PAUL V. "U.S. Wood-Based Industry Structure: Part I - Top 40 Companies." Forest Products Journal, Vol. 31, No. 10 (1981), pages 55-62.

2092. 57 IVA1B ROBINSON VERNON L., MONTGOMERY ALBERT A., STRANGE JAMES D. "Economic Growth Goal for Timber in the Southeast." Forest Products Journal, Vol. 31, No. 10 (1981), pages 69-76.

2093. 57 IVA1B RUDERMAN FLORENCE K. Production, Prices, Employment, and Trade in Northwest Forest Industries, First Quarter 1981. USDA Forest Service Pacific Northwest Forest and Range Experiment Station (1981), 47 pages. Current information on the timber situation in Alaska, Washington, Oregon, California, Montana, Idaho, and British Columbia, including data on lumber and plywood production and prices; timber harvest; employment in forest products industries; international trade in logs, pulpwood, chips, lumber, and plywood; log prices in the Pacific Northwest; volume and average prices of stumpage sold by public agencies; and other related items.

2094. 57 IVA1B RUDERMAN FLORENCE K. Production, Prices, Employment, and Trade in Northwest Forest Industries, Third Quarter 1980. USDA Forest Service, Pacific Northwest Forest and Range Experiment Station. (1981), 47 pages. Current information on timber situation in Alaska, Washington, Oregon, California, Montana, Idaho, and British Columbia, including data on lumber and plywood production and prices; timber harvest; employment in forest products industries; international trade in logs, pulpwood, chips, lumber, and plywood; log prices in the Pacific Northwest; volume and average prices of stumpage sold by public agencies; and other related items.

2095. 57 IVA1C BARTUNĚK J. "Development of Some Indicators of Forest Production in the CSSR as Forecast for the Period 1986-1990." Lesnictvi, Vol. 27, No. 1 (1981) In Czech with Russian, English, German, and French abstracts. Pages 13-28. Timber volume felled per annum will remain practically at the same level in the given years, in the CSSR it will amount to 17.2-17.5 million cubic meters; volume of silvicultural measures will increase, exploitation of the forest resource will become more intensive; volume of investments will grow, but the rate of growth will be lower than in the seventies; increase in the total volume of production will be moderate because the pattern of logging will remain constant (volume of production is influenced significantly by logging); number of workers will drop slightly; labor productivity will be increased moderately; assortment of commercial timber will be as follows: soft logs and poles 41 percent, soft pulpwood 25 percent, hard logs 12 percent, hard pulpwood and stacked wood 12 percent, other wood 10 percent, level of costs and profits will rise equitably.

2096. 57 IVA1C DORONIN N.A. "Improvement of Industrial Production in (USSR) Forestry." Lesn. Khoz. (1979) In Russian. Pages 17-18. Cited in Bibliography of Agriculture Vol. 44, No. 11/12.

2097. 57 IVA1C GEISBACHER J., KUTZKY K. "The Present State of Development of the Woodworking and Furniture Industry and the Plans for the Future Development in the Frame of the Ministry for Industry in the Slovak Socialist Republic." Drevo, Vol. 34, No. 5 (1979) In Slovak. Pages 121-123. Cited in Bibliography of Agriculture Vol. 45, No. 2.

2098. 57 IVA1C HEIKINHEIMO LAURI "Material Constraints on the Forest Industries in Finland." Proceedings, XVII IUFRO World Congress. Division 4. (1981), pages 164-172.

2099. 57 IVA1C HOFER P. "The Swiss Forest and Wood Industry in Time of Boom and Recession, an Analysis of Problems During the Transition Phase." J. For. Suisse Schweiz. Z. Forstwes. Vol. 130, No. 5 (1979) In German. Pages 381-396. Cited in Bibliography of Agriculture Vol. 45, No. 2.

2100. 57 IVA1C MIKOLASKI L. "Woodworking and Furniture Industries in the CSSR in International Economical, Scientific and Technical Cooperation in the Council for Mutual Economic Assistance." Drevo, Vol. 34, No. 4 (1979) In Slovak. Pages 89-90. Cited in Bibliography of Agriculture Vol. 45, No. 2.

2101. 57 IVA1C SABADI R. "Quantification of Economic Trends in the Timber Industry of Croatia from 1966 to 1977." Drvna Ind, Vol. 30, No. 5/6 (1979) In Serbo-Croatian (Roman). Pages 149-159. Cited in Bibliography of Agriculture Vol. 45, No. 3. Includes wood yield and sawmilling statistics.

2102. 57 IVA1C WERGENS B. "Forest Industry-Present Situation and Growth Potential." Sven. Papperstidn., Vol. 82, No. 13 (1979) In Swedish. Pages 373-375. Cited in Bibliography of Agriculture Vol. 45, No. 1.

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2107. 57 IVA2 ONDRO W.J., BOHNING R.A., STEWART H.M., STEVENSON G.R. A Directory of Primary Wood-Using Industries in Manitoba, 1980. Canadian Forestry Service Information Report NOR-X-230 (1980), 207 pages. Information on mill location, ownership, capacity, wood supply, current production and employment, products, markets, marketing agents, woodlands, equipment, mill facilities, and limiting factors for operation and expansion of the primary wood-using industries in Manitoba (sawmills, planing mills, wood treating plants, and pulp, paper, and fiberboard mills).

2108. 57 IVA4 ANDRUS CHARLES W. A Reporting and Planning System for a World Products Operation. Oregon State University, School of Business. Studies in Management and Accounting for the Forest Products Industries - Monograph Series. (1981), 16 pages. The forest products industry, particularly lumber and plywood, is a mature one. Basic manufacturing processes have not changed radically in recent decades. Rather, there has been gradual growth in efficiency through equipment and process modification. Efficiency gains are evident in greater manpower productivity and more output per unit of raw material. The driving force for recovery improvement has been a steep escalation of log costs, especially over the last decade. In the same decade, labor costs in the industry rose by about 150 percent. The result: a significant change in the ratio of raw material to total cost. The trend has focused greater attention on collection and reporting of recovery information. With heavier investment required to keep up with gains in technology has come a greater stress on utilization of facilities and measurement of their use.

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2118. 57 IVC1A BAIRD J. Marketing Finger-Jointed (sawn) Timber (in the UK). FAO. (1980), 8 pages. Cited in FAO Documentation Current Bibliography 81/7-8.

2119. 57 IVC1A MOERKVED K. Production, Marketing and Use of Finger-Jointed Sawnwood: An Overview (in Norway). FAO (1980) In English and French. 18 pages. Cited in FAO Documentation Current Bibliography 81/7-8.

2120. 57 IVC1A PORTERFIELD RICHARD L. "Western and Southern Lumber and Plywood Capacity- Approaching Stability?" Southern Journal of Applied Forestry, Vol. 5, No. 3 (1981), pages 98-104. A lumber and plywood capacity simulation model is derived from U.S. Forest Service data. Western and southern lumber and plywood capacity changes are responsive to gross profit margins specific to the individual product and region. Southern lumber production is forecast to increase in both absolute and relative terms through the 1980s while western production falls to some 20 percent of total U.S. demand (from 23 percent in 1976). Western plywood production capacity is forecast to continue to decline through the 1980s while Southern capacity increases. Southern stumpage prices could double from 1978 levels in constant dollar terms, and the demand for saw-timber-sized stumpage in the South may be one-third to two-thirds higher by 1990.

2121. 57 IVC2A GALSWORTHY A.M.J., GLASS M., VENESS R.C., WILLIAMS W.R. The Outlook for Printing and Writing Papers in Western Europe 1980-1985. Marketing Dept. ECC International Limited, John Keay House, St. Austell, Cornwall. (1981), 44 pages.

2122. 57 IVC2C BLYTH JAMES E., SMITH W. BRAD Pulpwood Production in the North-Central Region by County, 1979. USDA Forest Service, Resource Bulletin NC-56 (1980), 22 pages. Michigan, Minnesota, and Wisconsin production by species for each county and 1979 production and receipts data for Illinois, Indiana, Iowa, and Missouri as well as four production classes by county.

2123. 57 IVC2C NEVEL ROBERT L. JR., BONES JAMES T. Northeastern Pulpwood, 1979: An Annual Assessment of Regional Timber Output. USDA Forest Service Resource Bulletin NE-67 (1981), 28 pages. Discussion and tabular data on roundwood and chips from plant residues produced and received in the 14 Northeastern states in 1979. From 1978 to 1979, pulpwood production increased by nearly 4 percent to a record high. Roundwood production remained about the same, while chipped residue production jumped by 14 percent.

2124. 57 IVC2C NEVEL ROBERT L. JR., DICKSON DAVID R. Northeastern Pulpwood, 1977 - An Annual Assessment of Regional Timber Output. USDA Forest Service Resource Bulletin NE-60 (1979), 27 pages. Annual assessment of regional timber output based on a canvass of the papermills in the Northeast. Report contains a discussion and tabular data on roundwood and chips from plant residues produced in and received by 14 northeastern states in 1977: pulpwood production by state, county, and species group; pulpwood receipts from roundwood by state and species group; pulpwood chip receipts by state and species group; and production of total-tree chips. From 1976 to 1977, pulpwood production increased by 10 percent; roundwood production rose by 4 percent; and chipped residue production jumped by 29 percent. Current record levels and trends in pulpwood production for the past 15 years are discussed. A list of pulpwood mills that received northeastern pulpwood during 1977 is included.

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2126. 57 IVC6 MARKSTROM DONALD C., WORTH HAROLD E. Economic Potentials for Particleboard Production in the Black Hills. USDA Forest Service Resource Bulletin RM-5 (1981), 30 pages. A Black Hills plant producing 100 million square feet of ponderosa pine particleboard (3/4 inch basis) should produce attractive financial returns and be economically viable in the soft markets. The north central region of the U.S., together with Wyoming and Colorado, seems to be the prime marketing area.

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2129. 57 IVC8 CARPENTER EUGENE M. Wood Fuel Potential from Harvested Areas in the Eastern United States. USDA Forest Service Resource Bulletin NC-51 (1980), 14 pages. Estimates amount of wood fiber that could be available for fuel from forest residues on harvested areas in the eastern U.S. Includes a key to resource data published by the USDA Forest Service and factors for estimating amounts of cull, bark, tops, and limbs from inventory and product output tabulations.

2130. 57 IVC8 FOLEY GERALD, VAN BUREN ARIANE "Substitutes for Wood." Unasylva, Vol. 32, No. 130 (1980), pages 11-24. Turning to coal and other approaches to easing the pressure on fuelwood resources.

2131. 57 IVC8 GISLERUD O. "Technology and Business Economics of Wood Fuel for Small Businesses." Tidskr. Skogbruk Vol. 87, No. 1 (1979) In Norwegian. Pages 47-48. Cited in Bibliography of Agriculture Vol. 44, No. 3/4.

2132. 57 IVC8 KIERULFF NIEL C., ADAMS THOMAS C. Feasibility of Generating Electric Power from Forest Residue. U.S. Dept. of Energy, Bonneville Power Administration and the USDA Forest Service - Pacific Northwest Forest & Range Exp. Station. (1980), 47 pages. Preliminary investigation using Mount Hood National Forest in western Oregon as an example. Raw material supply, restricting regulations, and the interface between forest industries and the power industry are explored. These industries operate in different time frames and different markets, and it is difficult for them to coordinate efforts in producing electricity from wood fuel.

2133. 57 IVC8 LE ROUX P.J. "Supply of Fuel-Wood for Rural Populations in South Africa." South African Forestry Journal, No. 117. (1981), pages 22-27.

2134. 57 IVC8 LUGOSI A. "Energy Supply in Forestry and in the Woodworking Industry. II." Faipar, Vol. 29, No. 4 (1979) In Hungarian. Pages 97-105. Cited in Bibliography of Agriculture Vol. 45, No. 1.

2135. 57 IVC8 MCMINN J.W. Importance of Wood as an Urban Energy Source. USDA Forest Service General Technical Report SE (1979), pages 95-99. Cited in Bibliography of Agriculture Vol. 45, No. 2.

2136. 57 IVC8 NORONHA RAYMOND "Why Is It So Difficult to Grow Fuelwood?" Unasylva, Vol. 33, No. 131. (1981), pages 4-12. Foresters have to be willing to understand people and to put that understanding into the design and management of their projects. Whether woodlots are accepted or rejected by villagers depends upon realities that are social, cultural, economic and locally political.

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Landwirtsch Forsten, No. 195 (1979) In German. Pages 66-77. Cited in Bibliography of Agriculture Vol. 44, No. 9/10.

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2139. 57 IVC8 STUART WILLIAM B., PORTER CARL D., WALBRIDGE THOMAS A., ODERWALD RICHARD G. "Economics of Modifying Harvesting Systems to Recover Energy Wood." Forest Products Journal, Vol. 31, No. 8 (1981), pages 37-42. Recent interest in the recovery of previously underutilized logging residues for energy has stimulated the development of a variety of technologies for bringing this resource to market. The most promising approach for the independent contractor working the southeastern United States is to incorporate residue recovery equipment into his existing harvesting system.

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2141. 57 IVC8 ZERBE JOHN I. "Wood Residue Potential for Energy." In, Proceedings Bio-Energy '80 World Congress and Exposition. (1980), pages 51-52. About 500 million dry tons of wood are unused in the U.S. annually. If half this material were harvested and used for fuel, it would contribute up to 4.2 quads to our energy supply. New studies are aimed at a better assessment of the available material, improved harvesting systems, and development of more efficient conversion technologies for fuelwood and wood used for chemicals.

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2143. 57 VA1 HAYNES RICHARD W., ADAMS DARIUS M. "Matching Projections of Supply and Demand for Forest Products in the U.S." Forest Products Journal, Vol. 31, No. 10 (1981), pages 77-81.

2144. 57 VA1 HUTTUNEN T. "Wood Consumption, Total Drain and Forest Balance in Finland, 1978-80." Folia Forestalia 465 (1981) In Finnish and English. Pages 1-47. Part of a series of annual wood statistics published by the Finnish Forest Research Institute since 1964. Final statements for 1978 including preliminary estimates for 1980. Time series are included for the period 1960 to the present.

2145. 57 VA1 JOHANSSON PER-OLOV "An Outline of a Cost-Benefit Analysis of Increased Felling in Sweden." Canadian Journal of Forest Research, Vol. 11, No. 3 (1981), pages 637-642. Examines the meaning of "shortage" of roundwood in Sweden and estimates social benefits and costs of an increased supply of roundwood. Estimates indicate that it is profitable for the society to eliminate the excess demand (shortage) through an increased supply.

2146. 57 VA1 KAO CHIANG "Demand Relationship for Timber Sold from a National Forest." Quarterly Journal of Chinese Forestry, Vol. 14, No. 3 (1981) In Chinese with an English summary. Pages 37-42. Variables explaining the fluctuation of bid prices are total quantity supplied, prices of secondary products, costs of non-stumpage inputs, and inventories of timber under contract. A log-linear regression model is fitted with the coefficient of determination (R) of 0.82.

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2148. 57 VA1 LÖFGREN KARL-GUSTAF "The Effects of Rationing on the Demand for Production Factors: the Case of the Swedish Roundwood Market." Canadian Journal of Forest Research, Vol. 11, No. 3 (1981), pages 630-636.

2149. 57 VA2 KUMAR RAJ "Regional Forecasting of Demand for Malaysian Wood Products." The Malaysian Forester, Vol. 44, No. 1 (1981), pages 1-11. Forecasts the demand, both of export and home consumption, for sawlogs, sawnwood, and plywood till the year 1985 based on sample time series data of 1960-1976. Growth rates for exports are expected to be lower than the sample period, and those for home demand slightly higher. In all cases it may be necessary to increase imports of logs to meet desired levels.

2150. 57 VB1 CLEPHANE THOMAS P. "Forestry's Swing South Means Better Marketing Opportunity, Top Prices." Forest Farmer, Vol. 40, No. 9 (1981), pages 12-14, 28, 30, 36-37.

2151. 57 VB1 DARR DAVID R., HAYNES RICHARD W., ADAMS DARIUS M. The Impact of the Export and Import of Raw Logs on Domestic Timber Supplies and Prices. USDA Forest Service Research Paper PNW-277 (1980), 38 pages. Reviews U.S. foreign and domestic markets for softwood construction materials, giving special consideration to trade patterns among Japan, Canada, and the United States. For alternative assumptions about market responses to a ban of U.S. softwood log exports, displays impacts on selected measures of U.S. softwood stumpage, lumber, and plywood markets.

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2153. 57 VB1 PANT M.M., ANSARI M.Y. "A Retrospection on India's Wood Export." Journal of the Timber Development Association of India, Silver Jubilee Issue, Vol. 25, No. 1 (1979), pages 97-104, plus 3 tables.

2154. 57 VB1 SABADI RUDOLF "Development Optimization of Forestry and Forest Industries under Balance of Payment Difficulties Conditions." Proceedings, XVII IUFRO World Congress. Division 4. (1981), pages 185-195. Yugoslavia's forest resources are inadequate since

forestry and forest industries are principal foreign exchange earners. Policy suggestions for development are presented.

2155. 57 VB1 SEDJO ROGER A. Issues in U.S. International Forest Products Trade. Resources for the Future, Inc., Johns Hopkins Univ. Press. (1980), 274 pages. Topics discussed are: the future role of the United States in world forest resource trade; general effects of international trade restrictions and recent multilateral trade negotiations upon U.S. forest products trade; and economic effects of a specific set of restrictions upon one important commodity - conifer sawlogs.

2156. 57 VB1 SEDJO ROGER A., RADCLIFFE SAMUEL J. Postwar Trends in U.S. Forest Products Trade, a Global, National, and Regional View. Resources for the Future, Inc., Johns Hopkins Univ. Press (1980), 624 pages. A broad descriptive analysis of forest product production and international trade flows. Structure of the world's forest product production and trade, the role of North America and particularly the U.S. within that structure, and the contributions of the major American regions to the forest products trade.

2157. 57 VB3 ALEY JACK The Export of Maine Sawlogs to Quebec. Division of Planning and Development, Maine Forest Service, Dept. of Conservation, Augusta, Maine (1981), 53 pages. Interprets the strength of the Quebec milling industry in the context of the culture in which it operates, evaluates Bureau of Forestry data on log exports, discusses the trend of diminishing exports to Quebec as related to growing milling capacity in Maine and the spruce budworm infestation, surveys the attitude of the Maine woods industry toward Quebec mills that depend on Maine logs; details the comparative strengths of the Quebec milling industry and outlines why Quebec mills are a major force in the Maine sawlog market, and offers recommendations as to what the state can do to make its own milling industry more competitive.

2158. 57 VB3 GALLAGHER PAUL An Analysis of the Softwood Log Trade between the United States and Japan. Technical Bulletin 330 Forestry Series No. 34. Agricultural Experiment Station, Univ. of Minnesota. (1980), 19 pages. Results indicate that Japan's excess demand and the United States' excess supply relations are price responsive in the log market. Estimates indicate that changes in housing starts and domestic log production in Japan are critical in explaining past and likely future levels of U.S. log trade. Japan could drastically reduce its dependence on U.S. log imports if stagnant income precludes strong demand for new housing and the output potential of Japan's softwood forest is realized.

2159. 57 VB3 HAYNES R.W., DARR D.R., ADAMS D.M. "United States-Japan Log Trade: Effect of a Ban.", In, Issues in U.S. International Forest Products Trade. Resources for the Future. Washington, D.C. Research Paper R-23 (1980), pages 216-232. The market and welfare impacts of the imposition of a ban on U.S. log exports to Japan are examined under various assumptions of supply responses.

2160. 57 VB3 OLSEN ROBERT A., TERPSTRA ROBERT H. "An Appreciation of Capital Asset Pricing to the Spot Market for Softwood Logs in Oregon." Forest Science, Vol. 27, No. 2 (1981), pages 213-223.

This study utilizes the Capital Asset Pricing model to analyze risk, return, and competition in a major spot log market in Oregon for 1968-1978. Holding period returns on thirteen individual log species and grades were calculated using actual log sales prices and storage costs. Results suggest the market is competitive and that log investors earn a return which approximates the yield on U.S. Treasury bills and log returns do not appear to exhibit any significant amount of systematic or "market related" risk.

2161. 57 VB4 ADAMS D.M., HAYNES R.W. "U.S.-Canadian Lumber Trade: the Effect of Restrictions." In Issues in U.S. International Forest Products Trade. Resources for the Future, Washington, D.C. Research Paper R-23 (1980), pages 101-132. Market and welfare impacts are examined for the imposition of both a tariff and a quota on softwood lumber imports to the U.S. from Canada.

2162. 57 VB4 LINDSAY ROBERT C., COURTER RICHARD W. Selling Northwest Dimensional Lumber into Metric Markets. Robert C. Lindsay, 2910 S.W. Collins Ct., Portland, Oregon 97219. (1981), 68 pages + appendices. Softwood lumber export market as an alternative for production from Pacific Northwest sawmills. Five countries are used as examples of export markets (Japan, France, United Kingdom, West Germany, and Italy).

2163. 57 VB4 RICH STUART U. "Export Market/Domestic Market Relationships of Northwestern Lumber Mills." Forest Products Journal, Vol. 31, No. 8 (1981), pages 18-19.

2164. 57 VB4 RICH STUART U. "Product Line, Manufacturing Requirements in the Lumber Export Market." Forest Products Journal, Vol. 31, No. 10 (1981), pages 40-41.

2165. 57 VB4 European Export Study Report on Southern Pine Lumber. Southern Forest Products Association. (1981), 21 pages. Long term prospects for the use of Southern Pine in structural applications is favorable. Recent strengthening of the U.S. dollar has weakened Southern Pine's competitive position, long term position of Southern Pine will be more favorable than those of competing species from other countries.

2166. 57 VC1 SINIAKEVICH I.M. "Strengthening the Stimulating Function of Price (in the Forest and Woodworking Industry, USSR)." Lesn Prom-st (1979) In Russian. Pages 19-20. Cited in Bibliography of Agriculture Vol. 45, No. 3.

2167. 57 VC2 HAYNES R.W., CONNAUGHTON K.P., ADAMS D.M. Stumpage Price Projections for Selected Western Species. USDA Forest Service Research Note PNW-367 (1980), 14 pages. A procedure for disaggregating regional projections of stumpage prices to the species level, and projections to the year 2030 for selected western species.

2168. 57 VC2 "Timber Put on the Market in 1980 from Forests under State Control, and the Prices Obtained at the Main Autumn Sales of 1980." By the National Office of Forests. Revue Forestiere Francaise, Vol. 33, No. 2. (1981) In French. Pages 89-108.

2169. 57 VC3 ZUPANCIC M. "Lumber Prices and Forest Management." Sodobno Kmetijstvo, Vol. 12, No. 7/8 (1979) In Slovenian. Pages 349-351. Cited in Bibliography of Agriculture Vol. 44, No. 9/10.

APPENDIX

THESES AND DISSERTATIONS IN PROGRESS IN THE UNITED STATES AND CANADA

The following citations include the student's name followed by the subject of the dissertation or thesis, the institution where the degree is being completed, the degree, and the anticipated date of completion.

1. IB2 SARGENT FREDERICK W. Cost Effective Inventory Control Strategies. A Deterministic Approach under APL. University of Maine. M.S. Forestry (Forest Economics). August 1982.

2. IC BAUGNMAN MELVIN J. Minnesota County Lands: A Delphi Study of Alternative Policies for Funding, Timber Sales, and Land Ownership. University of Minnesota. Ph.D. June 1982.

3. IC FORD DOUGLAS H. Economic and Administrative Evaluation of Minnesota's Timber Intensification Program. University of Minnesota. Ph.D. March 1983.

4. IC HEWITT DAWN E. The Influence of the West Virginia Highlands Conservancy on Regional Forest Policy. West Virginia University. M.S. May 1982.

5. IC MCCANN BRIAN D. Organizational Patterns and Administrative Procedures for Statewide Forest Resource Planning: A Nationwide Review and a Case Study for Minnesota. University of Minnesota. M.S. • date not given.

6. IC WELBOURN MARTHA L. Ecologically Based Policy Analysis: A Case Study of Forestry in the Tanana River Basin, Alaska. Cornell University. Ph.D. September 1982.

7. ID1B KRONRAD GARY D. An Economic Analysis of the Forest Taxation Law in Massachusetts. Univ. of Massachusetts. Ph.D. February 1982.

8. ID1B WHITMAN DOUGLAS C. Ad Valorem Taxation and Its Effects on Forestry Investments in Mississippi. Mississippi State University. M.S. May 1982.

9. ID4 SMITH LISA ANNETTE Black Americans and Natural Resources as a Career, Why So Few Are Involved. Ohio State University. Master of Science - Natural Resources. December 1982.

10. IE BARBER RICHARD L. Analysis and Prediction of Private Timber Supply Responses in Western Oregon: A Tool for Formulation and Evaluation of Policy Alternatives. Oregon State University. Ph.D. Forest Management (Operations Research/Management Science) July 1982.

11. IE VATLER DEBI A Comparison of Three Input-Output Modelling Procedures. Auburn University. M.S. March 1983.

12. IF DORSEY WADE R. JR. Demand Model for State Employed Foresters. North Carolina State University. Master's degree. June 1982.

13. IF MINCOLLA JOSEPH Career Development of Young Women and Men Professionals (Foresters, Wildlife Biologists, and Range Conservationists in the U.S. Forest Service). Utah State University. Ph.D. July 1982.

14. IH LANGSETH RANDY Environmental Education Camps of the Inland Northwest: A Descriptive Analysis. University of Idaho. M.S. May 1982.

15. IIB2C MARTIN MICHAEL P. Resources (in terms of staff, facilities and revenues) and Expenditures of County and Multi-County Park Agencies in the United States. Purdue University. Master of Science. May 1982.

16. IIB3B MCCAY TERRENCE D. Forestry Potential of Penn Virginia Resource Corporation Lands. VPI & SU. M.S. June 1982.

17. IIB3C ALEXANDER LEE Private Non-commercial Forest Landowner Attitudes toward Wildlife in New England: A Constituency Analysis. Yale University. Ph.D. May 1985.

18. IIB3C HOLT STEPHEN FULLER Consulting Forestry Services Available to Nonindustrial Private Forest Landowners in the United States. (Essentially an economic supply-demand analysis.) University of Maine at Orono. Master of Science (Forestry). June 1982.

19. IIB3C KELLY JOHN F. The Theory of Timber Supply from Private Ownerships. Auburn University. M.S. June 1982.

20. IIB3C MARTY TIMOTHY An Extension of Nonindustrial Private Forest Landowner Typologies. University of Missouri, Columbia. M.S. August 1983.

21. IID1 GARCIA GREGORY M. Economic Model of Factors which Significantly Affect Investment on Timberlands with Special Emphasis on Texas House Bill 1060. Stephen F. Austin State University. Master of Science in Forestry. August 1982.

22. IID1 HENDRIX WILLIAM K. Impact of Incentives on After-Tax Returns on Forestry Investments. Oklahoma State University. M.S. June 1982.

23. IIA1 MILES PATRICK Economic Implications of Managing Nonpoint Forestry Sources of Water Pollutants in the Lake States and Northeastern Regions. University of Minnesota. M.S. March 1983.

24. IIIA1 PATTERSON JIM C. Goal Programming for Multiple-Use Forest Management Formulated As a Transportation Model. Stephen F. Austin State University. Master of Science in Forestry. August 1982.

25. IIIA1 RIEGLE KAREN S. The Economics of Multiple Use Forestry in the Southern United States. Auburn University. Master of Science in Forest Economics. June 1983.

26. IIIA5B HARRIS RICHARD L. An Evaluation of Methods Used to Measure Visitor Perception of Ecological Impacts at Wilderness Campsites. Oregon State University. Master of Arts in Interdisciplinary Studies. June 1982.

27. IIIA5C ADAMS MARY BETH Importance-Performance Analysis as a Tool in Urban River Recreation Planning. Purdue University. Master of Science in Forestry. May 1982.

28. IIIA5D ABERCROMBIE MICHAEL D. A Profile Study of Participants in the Volunteers in the National Forests Program. Colorado State University, College of Forestry and Natural Resources, Dept. of Recreation Resources. M.S. December 1982.

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30. IIIA5D LEE MARTHA E. Visitor Perceptions of Appropriate Criteria Parameters for Recreation Opportunity Planning. Oregon State University. Master of Science in Forest Management. June 1982.

31. IIIA5D MAW ROLAND Knowledge and Visitor Attitudes Concerning Grizzly and Black Bears by Users of the Waterton Lakes National Park. University of Alberta. Ph.D. November 1983.

32. IIIA5D THEISSEN WILLIAM J. Evaluation of Responses of Recreation Users of Wyoming and Colorado Wilderness Areas to Measures Used to Determine Their Psychological Satisfactions from the Experience. Colorado State University. Master of Science. May 1982.

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