United States
Department of
Agriculture

**Forest
Service**

General
Technical
Report
WO-41

Research for Tomorrow's Forests

1983 Research Accomplishments

✓ ind 2/1/85

United States
Department of
Agriculture

Forest Service

General Technical
Report WO-41

July 1984

Research for Tomorrow's Forests

1983 Research Accomplishments

Foreword

In this booklet you will find more than 50 highlights of our research projects. They are samples of the studies that our scientists and cooperators are doing to ensure a better job of resource management in the future. The listing of our research publications beginning on page 54 will give you an even more comprehensive look at the extent and depth of Forest Service research carried on in our eight regional Experiment Stations and in the Forest Products Laboratory. (A map of principal Research headquarters and field offices is on page 235.)

Our research takes several approaches in solving the problems of future management. Most often we undertake original research by analyzing the problem, experimenting carefully, then testing and applying the findings. Or, in cases where much research has already been done on parts of problems, we may gather and synthesize earlier findings that have yet to be applied. Our research has uncovered new ways to stretch limited management dollars, such as in appraising wildfire effects and making wildlife and recreation management more cost effective.

Basic research--because it can open whole new areas in the use of natural resources--continues to be an indispensable part of our program. Research in basic biotechnology, for example, may provide us with several ways to use the enzyme that degrades the lignin in wood--an enzyme that has been newly discovered by our scientists and that shows promise for many industrial applications.

The increasing demands on our renewable resources will make innovative research like this more important than ever in managing tomorrow's forests.

R. Max Peterson

Chief

Research Publications (cont.)

Acknowledgment

Jay G. Hutchinson, Writer/Editor for Information Services, North Central Forest Experiment Station, edited and coordinated production of this report.

Environment

Predicting Winter Survival of Hawks and Owls

Forest Service managers must ensure viable populations of wildlife species, as required by the National Forest Management Act. However, they are hampered by how little is known about habitat and energy needs of raptors, or birds of prey. Forest managers who contemplate changing the habitat need to know whether a raptor will use the new habitat and whether there is sufficient prey for the raptor to survive during winter, an especially crucial period.

Scientists at the North Central Station and the University of Missouri have determined the energy requirements and habitat preferences of Missouri raptors. They found that each species meets its winter energy demands in a different way. The red-tailed hawk, for example, migrates farther south in the winter than the great horned owl. Although they are ecological counterparts (both live in forests and hunt in openings), the red-tail lacks the energy-saving adaptations of the great horned owl--better thermal insulation and a sit-and-wait hunting technique.

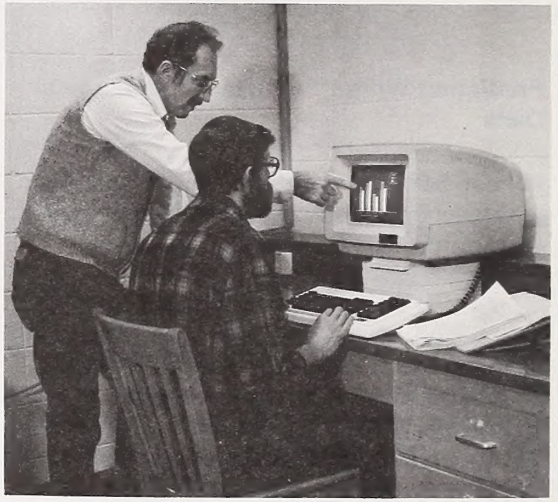
The research by Station and University scientists on raptor energy requirements and on the abundance of prey in various habitats formed the foundation for a model to predict whether a raptor can survive the winter in a given habitat. Armed with this new tool, Forest Service managers are able to modify their management practices to ensure enough of the right habitat for the birds to survive during winter.

The radio pack on this red-shouldered hawk will help researchers study what habitats the bird prefers.

Before ways to control acid rain are developed by the United States and Canada, its sources and cause must be better understood. The chemicals that fall from the atmosphere in rain and snow vary greatly, depending on their sources and the type of storm. Researchers at the North Central and Northeastern Stations are learning that there are important regional differences in the cause of acid rain.

In north central Minnesota, alkaline dust from the arid West sometimes neutralizes the acid (hydrogen ions) in the rain. Scientists in the North Central Station have developed a method to separate "dusty" rain samples from "clean" ones. (The dusty ones contain only 10 percent of the hydrogen ions falling so that most of the acid is in the clean samples.) These clean samples of acid rain in Minnesota reveal that the acidity is caused primarily by nitrates and not by sulfates. Nitrates in acid rain are derived chiefly from the burning of gasoline and natural gas, while sulfates come mainly from the burning of high-sulfur coal. Acid rain caused by sulfate can acidify lakes, while nitrates (a common fertilizer) are quickly utilized by vegetation without the water becoming acid.

In New England, alkaline dust has less influence on rainfall than in Minnesota. More important for acid rain are the type of storm and direction it comes from, as studies in central New Hampshire show. Precipitation from the north-northwest through northeast was "cleanest" (pH 4.4), while storms from the south (between Boston and New York City) and south-southwest (through New York City) were most acid (pH 4.0). Rain from short thunderstorms was usually more acid than rain from long-lasting frontal storms; in fact, sulfate concentrations were four times greater in thunderstorms. Acid rain is greatest in summer in the Northeastern United States because thunderstorms prevail then, atmospheric sulfates are high, and stormwinds are most often southerly to westerly.



Evaluating the impact of acid rain is easier now that scientists have found precise ways to compute the amount of acidifying chemicals in rain samples.

Revegetating Bentonite Mine Spoils: A New Lead

Bentonite mine spoils in the northern Great Plains are difficult to revegetate and reclaim. Although the spoils are not deficient in nutrients, their physical and chemical properties are poor. Plant succession is slow on them for other reasons too: topsoil is scarce, rainfall is low, and there is livestock grazing. Steep spoils mined 30 years ago remain barren and eroded.

Reclamation efforts (contouring, top soil spreading, seeding) by researchers in the Rocky Mountain Station have shown promise of overcoming low pH, soil salinity, high sodium and sulfur concentrations, and soil compaction. But none of the plants that were intentionally seeded by scientists on the reclaimed spoils survived better or was more productive than rillscale, a native broadleaved herb that seeded in on its own.

The success of rillscale, regardless of the age of the spoil or reclamation treatment, shows that revegetation is possible in this harsh environment. However, more than 75 years may be required to restore these disturbed sites to productive sagebrush grasslands once again.

Native plant rillscale is the most successful colonizer on the bentonite mine spoils.

Geophysical Exploration: How Firm a Foundation?

On steep, unstable, granitic slopes in central Idaho, locating and designing roads to minimize erosion and sediment production is extremely important. One crucial but largely neglected factor has been subsurface rock properties on these slopes. Underground rocks that have weathered or altered enough to contain sufficient clay can become "plastic" and collapse after a disturbance such as roadbuilding.

Researchers at the Intermountain Station found that a combination of seismic and resistivity surveys can predict zones of weathered rock and provide information about its strength and the subsurface water content. Previously, geophysical surveys using only one technique had not proved particularly valuable for predicting the degree of rock weathering or zones of subsurface water flow requiring drainage. By combining the two survey techniques, scientists allow the strengths of one to compensate for the weaknesses of the other and improve the interpretation of results.

These research findings cut the cost of road repairs substantially, particularly in areas where engineers have little experience or prior knowledge about subsurface conditions. In addition, engineers can now predict accurately (without preconstruction data) where to locate underground drains.

Two geophysical survey techniques can predict the properties of subsurface rocks and cut the costs of road repair.

Getting More Water From Rocky Mountain Forests

Harvesting timber increases water yield by reducing evapotranspiration and altering soil moisture patterns. Especially in the West, this spinoff from timber harvesting is a major resource. Rocky Mountain Station scientists have pioneered the research on integrating high-elevation timber harvests with other resource uses, including water and wildlife.

A pilot-scale application of research findings on a 41-hectare watershed on the Fraser Experimental Forest in Colorado now has verified the performance of the Subalpine Water Balance Model for predicting water yield increases after timber harvest. Trees were harvested in small, circular patches covering 36 percent of the watershed area. Diameter of the patches was about five times the height of the trees. These small holes in the canopy create turbulence and trap snow blowing over the forest. When these snowdrifts melt in the late spring, they feed streams rather than trees.

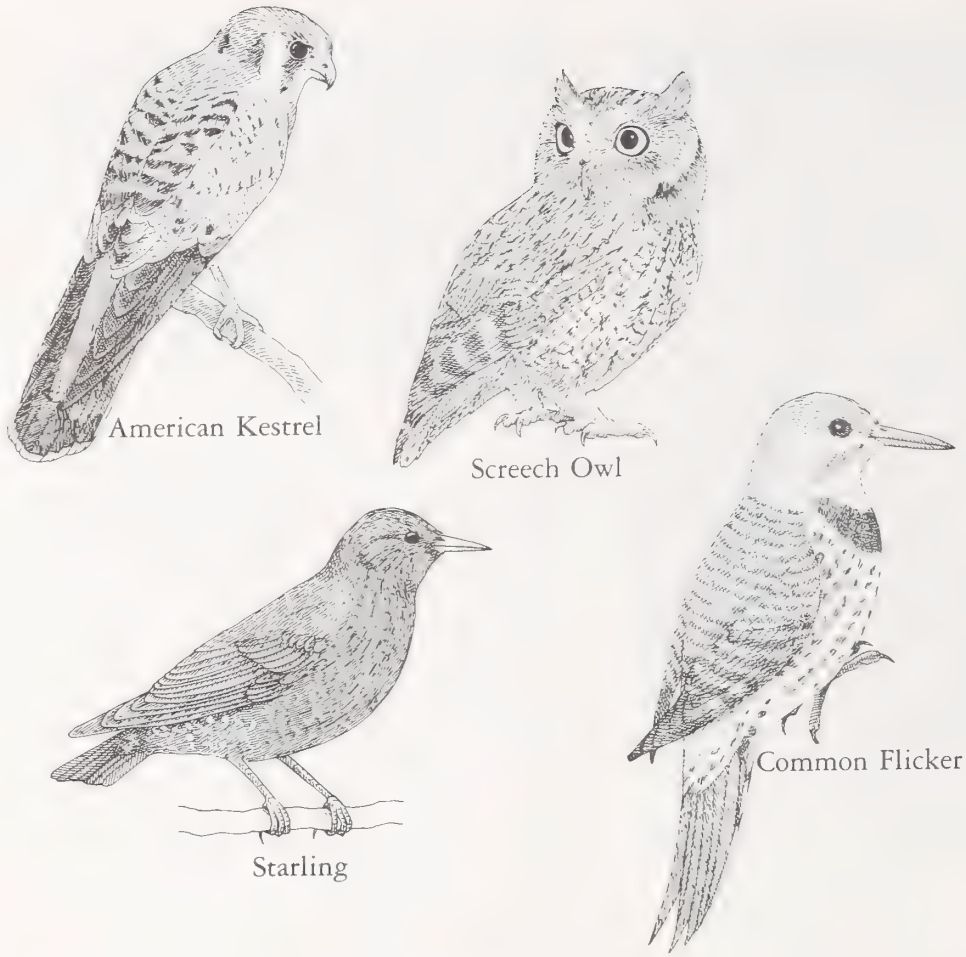
The Subalpine Water Balance Model had predicted a 4.3-centimeter increase in water yield in an average year; for the 4 years since treatment, the flow increase has averaged 4.6 centimeters, with no effect on peak flow. Significantly more snow accumulated in the cut opening, but mean peak water equivalent on the watershed was not altered, substantiating research understanding of snow redistribution processes.

Small openings cut in mountain forests trap blowing winter snows in deep drifts to prolong snow melt into summer.

The National Forest Management Act requires that wildlife on National Forests be monitored to ensure that no species are endangered by forest management and to verify that wildlife species respond to planned activities. However, it is prohibitively expensive to monitor populations of many species of wildlife over an area as large as a National Forest with usual census methods. The Pacific Southwest Station has developed a new approach which, if applied nationwide, could reduce costs of monitoring birds by 50 to 75 percent.

The idea is to group together all bird species that use similar parts of the habitat for the same purposes (either feeding or nesting) and then count all individuals (no matter what species) in the group. Such groupings are called guilds, examples of which include birds that primarily use either the ground, shrubs, tree trunks, or foliage.

Monitoring trends in guilds provides important information on the ability of individual zones of a habitat to support the birds that inhabit that zone. In addition, because all birds are counted during field sampling (which costs no more than counting only one species), Forest Service managers may be able to evaluate evidence of declines in individual species as well.



This group of birds, or "guild," includes those that feed on the ground and nest in tree boles and limbs.

Applying What We Already Know About Rangelands

Managing the rangelands of the Great Basin has been hampered because we do not know enough about them and because what we do know has not been fully applied. As a result, range quality and the range's ability to produce livestock and wildlife have declined. In recent years the public has been displeased over the condition and use of publicly owned rangelands and concerned about protecting and increasing all rangeland values.

In an effort to make useful what is already known about rangelands, the Intermountain Station has published a summary paper "Managing Intermountain Rangelands--Sagebrush-Grass Ranges," GTR-INT-134. Sagebrush-grass vegetation makes up one of the largest ecosystems in the Great Basin and has been the subject of considerable research during the past half century. Much of this ecosystem was abused during early settlement; and much is still far below its potential in forage production, wildlife habitat, and environmental quality.

This summary distills for rangeland managers and users the most important information already available. Besides summarizing methods of rehabilitating, converting, and managing sagebrush, it also serves as a manager's reference and guide to research results. Included, for example, is the latest on sagebrush taxonomy and classification of sagebrush ecosystems.

This first-in-a-series of summary publications on managing Great Basin rangelands does for users and managers what they do not have the time or inclination to do for themselves--digest the most useful knowledge from over 1,250 earlier papers.

Sagebrush vegetation can provide excellent forage. Here, sheep eat seed stalks of black sagebrush in Utah.

New Plants Will Help To Improve Intermountain Ranges

Three range plants have been given to commercial growers so they can produce and distribute certified seed in the Intermountain West. Adapted to arid sites (10 to 15 inches of rainfall), the three plants will serve as forage for livestock and wildlife and help to control erosion.

The Intermountain Station, USDA Soil Conservation Service, the Utah Division of Wildlife Resources, and other agencies released the plants after 15 to 20 years of tests that determined the best varieties for certain purposes. All three are widely adapted to conditions in the Intermountain area.

"Ephraim" crested wheatgrass was selected over other crested wheatgrasses because of its ability to produce rhizomes. It is particularly valuable for stabilizing disturbed sites. "Paiute" orchardgrass is adapted to drier conditions than other orchardgrasses and provides a longer period of green forage and better fall greenup on dry sites than the crested wheatgrasses. "Rincon" fourwing saltbrush was selected for its sustained biomass production, wide adaptation, and forage quality.

Seeds are plentiful on a 3-year-old "Rincon" fourwing saltbush plant, useful for its forage quality and sustained production.

Acid Mine Drainage Not a Major Problem in Appalachian Watersheds

An analysis of streams from surface-mined watersheds throughout the Appalachian coal mining region has shown that streams are less acid than commonly believed. Research reports from the Northeastern Station show that at least two-thirds of streams draining both mined and unmined watersheds have pH values exceeding 6 (mildly acid). Values averaged 6.3 on pre-1972 mined watersheds, 6.7 on watersheds mined from 1972 on, and 7.0 (neutral) on unmined watersheds. In general, streams from watersheds mined after January 1972 are more favorable for aquatic life (less acid) than those from watersheds mined earlier. The pH values of streams in all categories also tend to be grouped in accordance with geologic boundaries.

The reports are being used as baseline information by miners, consultants, environmentalists, regulatory agencies, and others. Also, the data are useful as a basis for future water quality studies. Some States are trying to obtain permission from the U.S. Office of Surface Mining to use these data in lieu of some of the pre-mining water sampling now required as part of mining permit applications. Besides the published reports, this information has been disseminated in training sessions to mining operators and regulatory personnel in Kentucky and West Virginia, and sessions are planned for other States in Appalachia.

At least two-thirds of streams draining mined and unmined watersheds are above pH 6 (only mildly acid).

What Makes an Urban Park or Forest Visitor Feel Safe?

Fear of crime and antisocial behavior in urban parks and forests is a serious barrier that prevents many people from using the parks and detracts from the enjoyment of those who do. Urban forest managers could encourage more enjoyable use of parks and forests if they could relate the park environment to how safe people feel.

The North Central and Southeastern Stations jointly studied how people reacted when they were shown color slides of urban parks and forests. Analysis showed, for example, that dense vegetation increases fear for most people, but some feel safest in heavily wooded, undeveloped forest. Most people feel safer when there are buildings, cars, or other people nearby, as long as the park and nearby structures are well maintained and free of graffiti.

The results of this research will provide guidelines for managers seeking to improve park safety (both real and perceived) while maintaining esthetically pleasing landscapes. Trees and other vegetation are essential for esthetic quality; and if they are properly placed and trimmed, they need not interfere with the visibility that most people need in order to feel safe in a park.

A park can be experienced as both safe and beautiful if trees are placed and trimmed so they do not interfere with visibility.

Report Fosters Cooperation Among Wilderness Managers

The National Wilderness Preservation System, encompassing about 80 million acres, contains diverse ecosystems and supports many uses. Each of the four agencies that manage wilderness areas imposes its own mandates and policies. This results in a decentralized system loosely united through the general provisions of the Wilderness Act.

To understand how individual wilderness areas fit into the national system, researchers at the Intermountain Station surveyed managers of all wilderness units. The managers answered questions about their management situations, problems, and techniques.

The survey shows that most wilderness units share common problems. Resource degradation and loss of solitude are troublesome in most areas. Despite similar problems, however, managers responded differently because of differing philosophies among agencies. The National Park Service manages most restrictively; its philosophy emphasizes resource protection. The Forest Service emphasizes freedom of choice for the user, so is less restrictive, while the Fish and Wildlife Service emphasizes preservation of wildlife on its lands.

The survey suggests that managers should share their common experiences in managing wilderness. More communication and cooperation between areas with similar problems would improve management. The survey helps managers to identify areas with similar problems and areas where various management techniques have been tried. This allows managers to profit from each other's experiences and should ultimately lead to a more consistently and efficiently managed wilderness system.

Even though wilderness areas are physically diverse and are managed according to different philosophies, they have many problems in common.

Growing Timber and Protecting Water Quality—Are They Compatible?

The southern coastal plain of the United States extends far up the Mississippi Valley to southern Illinois; it includes, for example, most of the State of Mississsippi. The hardwoods that originally covered the area were cleared for agriculture. Poor farming practices often led to severe erosion and eventual abandonment. Since the 1930's and 1940's large areas of this eroded land have been planted to pines. Now that pine management is an important contributor to the local economy, forest managers need to know what impact managing pine has on water quality and site productivity of the coastal plain.

To begin answering this question, scientists at the Southern Station have gathered baseline data on nutrient and sediment yields from streamflow on five undisturbed pine plantation watersheds. These are being compared with yields from sites disturbed by management activities such as timber cutting and site preparation. Results so far show that careful harvesting methods do not reduce water quality, but that site preparation methods necessary to maintain water quality have yet to be worked out.

Regarding nutrients, the concentration of nitrogen and the biological oxygen demand of streamflow from the undisturbed watersheds were well within the limits recommended for protection of aquatic life. Concentration of phosphorus, however, approached these limits. Most phosphorus, half the nitrogen, and a third of the organic carbon were lost in the sediment, showing that soil disturbance must be minimized during management. Researchers developed an equation that can be used to predict sediment-related losses of nutrients, even in watersheds differing in soils and hydrology. This is currently being used by regulatory agencies that establish water quality standards in Coastal Plain States.

By sampling nutrients in streams researchers found that careful timber harvesting does not reduce water quality.

Knowing the habitat needs of wildlife is essential to meet the requirements of the National Forest Management Act, which states that we must maintain viable populations of native species. The role of amphibians and reptiles in the forest ecosystem is not yet well understood, but we do know they are an important food for wildlife such as raccoons, wading birds, and thrushes. A species such as the red-shouldered hawk feeds largely on frogs and salamanders. To learn more about the kinds of habitat used by different reptile and amphibian species, the Northeastern Station is studying these animals in the major forest types of the Northeast.

In a 125-acre study area in New Hampshire, scientists counted over 2,000 individuals of 11 different species; the most common species included the wood frog, American toad, and red-back salamander. The different species differed greatly with respect to the number of individuals inhabiting different forest types. Most species, for example, were found more frequently in hardwood types. Litter depth seems to be more related to the abundance of amphibians than other features of habitat, but research is continuing to determine the habitat requirements of these lesser known species. Could a forest management practice such as whole-tree harvesting have a serious impact on salamanders that breed in rotten, fallen logs, for example? Researchers will eventually be able to answer these questions for forest managers.

Trapping is one step in determining the habitat requirements of amphibians and reptiles.

Mountain Meadows in the Sierra Nevada of California

The vegetation and diverse habitats of mountain meadows in the Sierra Nevada make them concentration points for people and animals. Abundant forage attracts livestock and wildlife, while the scenery attracts hikers and campers. Pack trippers and their animals are also drawn to them. As a result, many meadows have deteriorated and some suffer from overuse.

Since the early 1960's, Pacific Southwest Station scientists have been involved in research to improve meadow management. A comprehensive work, "Mountain Meadows in the Sierra Nevada of California," will soon be published to summarize knowledge about meadows for land managers. A portion of the guide will deal with techniques that land managers can use to help restore deteriorated meadows. Some meadows have been so trampled by livestock and people that sod and soil are seriously affected. Erosion has moved nutrients from place to place and eventually altered the kinds of plants that grow there. Other meadows are being invaded by lodgepole pine seedlings, whose establishment is favored by low snowpacks and early melting. Restoration can be a slow process because the higher mountain meadows lie, the lower their productivity and the longer it takes land managers to restore them to reasonable use.

In addition to helping land managers in the Sierra Nevada ensure the future productivity of meadows, the new guide will classify meadows according to soil and vegetation characteristics and describe how biologically and geologically stable they are. It will also categorize more than 200 plants into "decreasers," "increasers," and "invaders." Land managers can tell how "healthy" a meadow is by the relative sizes of these three groups of plants.

How frequently certain plants are found tells a lot about meadow conditions.

Prescribed Burning Improves Range Forage and Growth of Longleaf Pine Seedlings

On the coastal plain of the Southern United States, large amounts of cattle forage can be produced beneath young pine stands or under older stands in which the trees are widely spaced. To keep forage quality high, however, pine pastures must be burned every 1 to 3 years. Prescribed burning removes old vegetation and pine litter so livestock can more readily graze the new green growth. Winter burning increases forage yields, while summer burning boosts forage quality. Continuous moderate grazing after periodic burning helps keep forage plants producing new growth. It also aids cattle in maintaining their weight throughout the summer without supplements on what appears to be protein-deficient forage.

People considering joint production of pine and cattle in the region have raised the question--what about the effects of repeated burning and grazing on the productivity of the soil? Long-term studies by the Southeastern Station indicate that productivity is not lost. Even though frequent burning greatly reduces the amount of organic matter in the forest floor, a 40-year study shows that burning followed by grazing has no detrimental effects on nutrient budgets or on pine growth. In fact, burning may improve pine growth by mineralizing nutrients that would otherwise be tied up in the forest floor.

Scientists at the Southern Station also learned that longleaf pine seedlings in the "grass" stage on the range responded better in both survival and height growth to May burning than to the commonly practiced March burning. Moreover, scientists have found that two or three annual fires in May, followed by fires at 2-year intervals, may be adequate and better than a series of annual fires over many years. As a result of these findings, scientists are now recommending May burning for longleaf pine sites on the National Forests of the coastal plain.

Burning at the right time removes litter and encourages growth of forage for cattle. It also gives a boost to longleaf pine seedlings.

Most vistors to recreation areas seek recreation, refreshment of spirit, and enjoyment of natural resources. In this respect, handicapped individuals are no different from nonhandicapped visitors. Unfortunately, there are barriers to access for the handicapped in many areas and facilities, and handicapped citizens may find they are unable to avail themselves of the recreation opportunities nonhandicapped persons take for granted.

With this in mind, the Northeastern Station, along with the University of New Hampshire and several other State, private, and Federal agencies, studied the problem of accessibility by handicapped people to recreational resources in New Hampshire. They came up with recommendations on how to remove barriers and provide aids for the handicapped. They also published a guide for handicapped visitors to the New Hampshire State Parks and to areas in the White Mountain National Forest. The guide has been widely disseminated. The study procedures could be duplicated elsewhere in order to help improve accessibility for the handicapped, not only in New Hampshire but regionally and nationally as well.

A new guide for handicapped users of recreation areas recommends ways to remove barriers and provide aids.

One of the wilderness manager's most vexing problems is deciding what to do about overused campsites. Without action, the goal of preserving natural conditions in wilderness areas cannot be achieved.

Researchers at the Intermountain Station have conducted studies in the northern Rockies to develop guidelines on how managers can control campsite impacts. The results show that just a little use can cause considerable damage, and that beyond this threshold a lot more use causes only a little additional damage. For example, in the Eagle Cap Wilderness, campsites used only a few times a year had a 9-percent vegetation cover, while campsites used up to 50 times more frequently still retained a vegetation cover of 4-percent.

This suggests that managers can minimize ecological change in heavily used parts of backcountry areas by limiting use to a few sites. If they do not take this action, campers will begin to camp everywhere at popular destinations. In one study, 221 campsites were found in a 325-acre area around two Eagle Cap Wilderness lakes, even though typical use was fewer than 10 parties per night. Dispersing use among a large number of sites seems appropriate only where use is low, ecosystems are resistant, and campers are familiar with low-impact camping techniques.

Parties using pack animals are particularly hard on campsites. This was demonstrated in a study in the Bob Marshall Wilderness, where sites used by stock parties were unusually large and had numerous damaged trees. Researchers have found that the most effective way to minimize these impacts is to educate users, particularly about the damage caused by felling trees and tying stock to trees. While there is much more to learn about what deteriorates campsites, managers in the northern Rockies are already putting these research results to use in their campsite management plans.

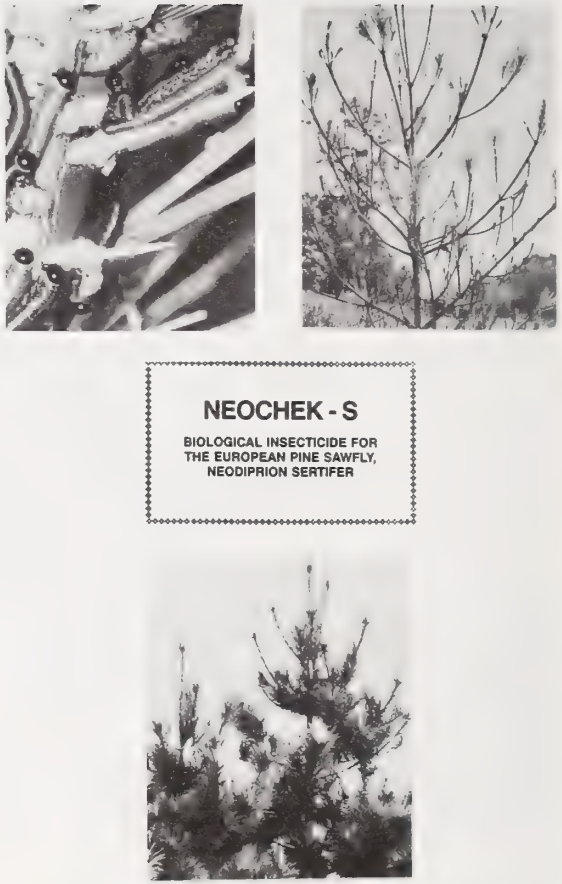
By concentrating use at a few campsites, managers can minimize ecological change in heavily used backcountry of the northern Rockies.

Sawfly Virus Is Registered With EPA

The European pine sawfly has been a minor, but recurring, pest of red and Scotch pines in the Northern United States. Christmas tree and municipal plantings have been a frequent target of this insect. It can be controlled by a nucleopolyhedrosis virus (NPV), a naturally occurring disease organism that spreads rapidly through sawfly populations.

Research at the Northeastern Station, in cooperation with several universities, State and Private Forestry, and Canada, culminated in registration of the virus product by the Environmental Protection Agency in 1983 for use by the Forest Service. The registered product has been given the name "Neochek-S."

The virus is highly virulent in sawflies and environmentally safe--one reason why it is in demand by watershed managers. It is highly effective at very low dosages and inexpensive to produce and use. Unlike a chemical insecticide, it has the advantage of spreading through the sawfly population after it is applied. Conventional ground or aerial equipment can be used to apply the virus in formulations that do not require special protectants or additives other than "stickers"-- commonly used substances that keep the virus from washing off tree needles in the rain.



Newly registered Neochek-S equals trouble for the European pine sawfly, but good news for forest trees.

Beetle and Decay Protection in Log-Kit Homes

Log-kit construction of homes is a new and growing billion-dollar industry. However, studies of recently constructed homes turned up frequent cases of wood-infesting beetles and decay, even including fungus fruiting bodies, on major structural components. Following up, scientists at the Southern Station and Mississippi State University undertook extensive research on how to prevent beetle and decay attacks.

The researchers came up with guidelines prescribing measures that owners should take to guard against insects and decay. These measures begin with choosing building designs and log shapes that do not trap moisture. Manufacturers should debark logs immediately after harvest and then use a three-step system that includes log drying and application of preservatives to protect against beetles and mold or mildew fungi. The guidelines end with maintenance measures that log-kit owners themselves can take at 4- to 5-year intervals to protect their investment in a home.

Fungus fruiting bodies on several logs and in the corner indicate advanced decay in a 5-year-old log house. Roof runoff onto log ends encourages decay.

Reducing Impacts of the Western Spruce Budworm

The western spruce budworm is the most widely distributed and destructive defoliating insect of true fir, Douglas-fir, and spruce forests in the West. In the northern Rockies alone, it has persisted for 3 1/2 decades on more than 10 million acres, substantially reducing the region's ability to meet demands for timber and other resources. Past use of insecticides has temporarily reduced budworm populations, but has not changed the course of the regional outbreak, or significantly reduced the problem.

In addition to evaluating past suppression efforts with chemical insecticides, Intermountain Station scientists have investigated the biology and ecology of the budworm and have appraised the alternatives to the use of insecticides. They have better defined insect-host-stand relationships and have developed equations predicting topkill, mortality, height growth, and regeneration vigor.

The findings indicate that the best long-term approach to reduce the impact of the budworm is through intensive silviculture--to create tree and stand conditions less favorable to the budworm and more favorable to the establishment and early development of vigorous young stands. Guidelines developed by Station scientists are being used by managers to select silvicultural prescriptions that integrate the management of the budworm with sound forest practices.

Even-aged silvicultural systems, such as this seed tree cut in Montana, reduce susceptibility to western spruce budworm.

New and Cheaper Ways To Control Walnut Root Rots

Root rot boosts the cost of producing walnut seedlings by more than $4 per thousand, or 17 percent of total production costs. For States that grow large numbers of walnut seedlings, these additional costs are significant.

Cooperating researchers at the North Central Forest Experiment Station, Purdue University, and Virginia Polytechnic Institute and State University have found that five different fungi are responsible for walnut seedling root rots. Scientists at these institutions have developed a guide for nursery managers that describes walnut root rot symptoms and shows managers how to identify the fungi that cause the diseases.

The guide also recommends cultural, biological, and integrated controls that could be less expensive than chemical controls. One example is the use of raised seedling beds. These promote good drainage after irrigation and avoid conditions that favor root rots. This and other recommendations in the guide are already being used by nursery managers in the Midwest to increase walnut production and reduce costs.

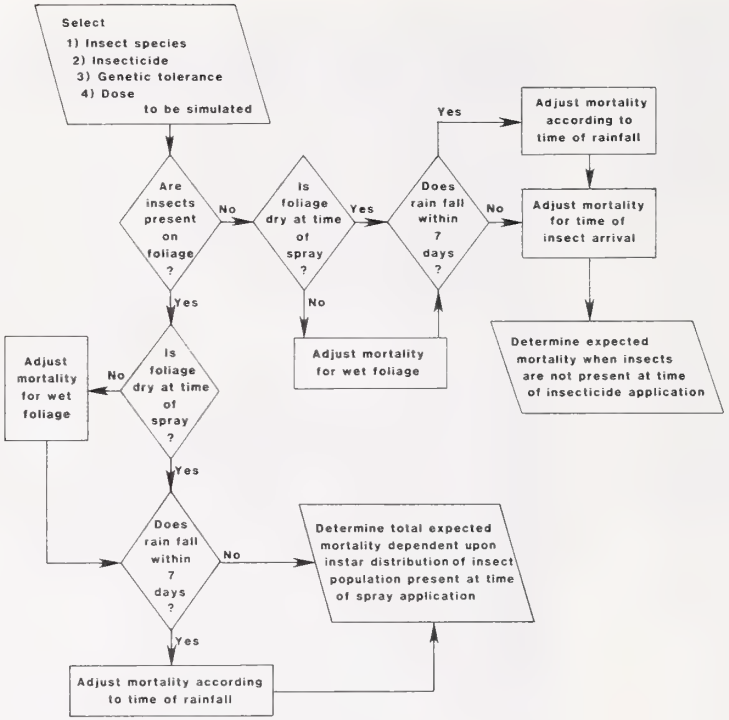
Preventing root rot in the nursery bed can mean substantial savings for States that grow many black walnut seedlings.

New Model Predicts Field Effectiveness of Insecticides

Many attempts based solely on laboratory test results have been made to predict the effectiveness of chemical insecticides on forest defoliators. Laboratory tests are considerably less expensive than field trials and, if well designed, could be used to plan and predict the results of field trials and ensure that desired insect mortality is attained at minimum cost.

Scientists at the Pacific Southwest Station and the University of Idaho, Moscow, have developed a probability model that predicts how efficient insecticides will be against western spruce budworm and Douglas-fir tussock moth populations during their seasonal development. The model is flexible and interactive. It can also be used to predict the effect of a chemical insecticide for any specified distribution of the immature larval stages.

This model will be useful both as a research tool and as an aid for forest managers specifically concerned with managing western spruce budworm or Douglas-fir tussock moth. The model predicts the results of actual field applications with 73- to 95-percent accuracy. The logic that this model uses should be adaptable to other forest defoliators, once comprehensive laboratory data bases have been developed for them.



To choose an insecticide for western spruce budworm or Douglas-fir tussock moth, foresters will be using this model.

When insect damage to trees is noticed, identification of the insect is the first step toward possible management. After the insect has been identified, information is needed to decide how serious the problem is and how to reduce or prevent further damage.

For this type of problem, an up-to-date reference book is invaluable. It should contain descriptions of pest species and their damage, their life histories, and general information on their control. The first comprehensive reference on forest insect pests in the Eastern United States was published in 1950 by F. C. Craighead as a USDA Miscellaneous Publication, "Insect Enemies of Eastern Forests." It was updated in 1972 by W. L. Baker and published under the title "Eastern Forest Insects."

Since then, a great deal more has been learned about forest insects, and the book has again been updated, this time by A. T. Drooz of the Southeastern Forest Experiment Station. The new volume, which contains an additional decade of research findings, will be available soon from the U.S. Government Printing Office under the title "Insects of Eastern Forests."

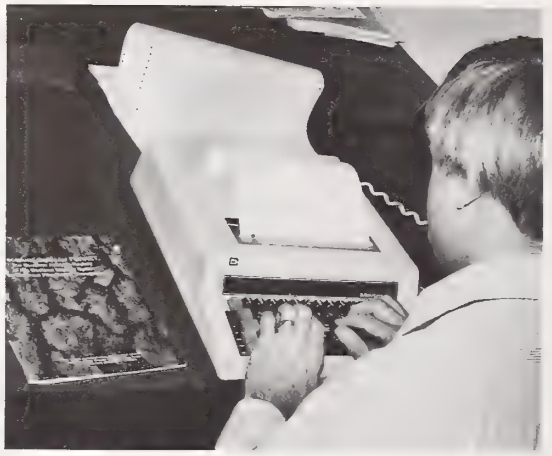
This tiny parasitic wasp, stinging the cocoon of an introduced pine sawfly, is important in biologic control.

Ferreting Out Information To Manage the Southern Pine Beetle

Recent infestations of the southern pine beetle prompted scientists in the Forest Service to develop a series of computer-based mathematical models that describe beetle population dynamics, stand growth, and utilization of beetle-killed timber. The models also rated stand hazard and evaluated the impact of the infestation. Access to these models was limited to research scientists because of the manner in which they were originally developed. To overcome this problem and make the models accessible to forest managers, Southern Station scientists and researchers at Texas A & M University developed a computer program called FERRET.

FERRET is an interactive system of questions and answers that leads users to the most appropriate model or models for their needs. At the present time, 28 models are available for use. Through FERRET, users have access to information for decisionmaking based on pest population dynamics, host dynamics, impact, overall management objectives, ownership, land use patterns, and user capabilities.

FERRET is useful for long-term resource planning as well as for crises. Likewise, it provides a means of evaluating management strategies and treatment tactics. Organizations currently using FERRET include forest industry, State forestry organizations, the Forest Service, and other Federal agencies.



A user interacts with the computer by punching in answers to questions about his timber stand and its beetle infestation.

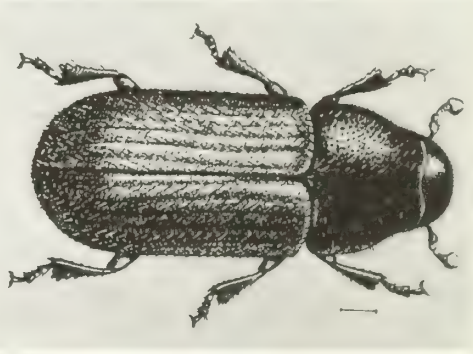
Beetle-Killed White Spruce Retains Value for Pulp and Paper

White spruce killed by spruce bark beetle infestations in south-central Alaska retain their value for making pulp and paper even after the trees have been dead for 50 years. Researchers for the Pacific Northwest Station have found no difference in pulp yields between trees dead for 1 year and those dead for as long as 50 years.

This finding is important because extensive stands of these dead white spruce are not accessible for logging at present, and there are currently no local paper mills or out-of-State markets for this material. However, forest managers will have time to work out these problems. White spruce is the most important commercial species of timber in Alaska. Insect losses annually amount to 100,000 cubic meters (3,531,467 cubic feet).

The research was conducted throughout south-central Alaska and in the Yukon Territory of Canada. Cooperating in the study were the Yukon Forest Service and the Alaska Region of the USDA Forest Service. These agencies were concerned about whether harvest of dead spruce could be postponed until it becomes economically feasible.

White spruce killed by bark beetles is salvaged near Tyonek, Alaska.



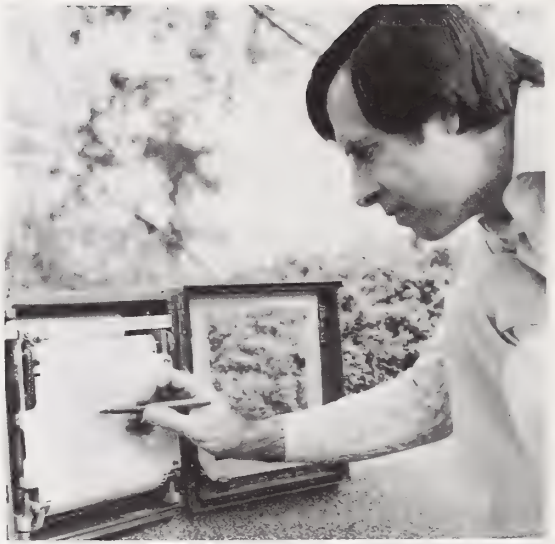
Significance of "Natural" Smog

Organic hydrocarbons (such as monoterpenes and isoprene) that are emitted from trees, brush, and other vegetation are the forerunners of "natural" smog. To determine the significance of these emissions in the Los Angeles Basin, scienists from the Pacific Southwest Station, the Statewide Air Pollution Research Center, and the University of California, Riverside, determined vegetation composition and measured the hydrocarbons emitted from this vegetation.

They found native and urban plant species to be minor sources of reactive organic hydrocarbons while human sources were major. No more than 10 percent (and probably much less) of the photochemically formed ozone in the Los Angeles Basin can be traced to emissions from foliage.

Below the 3,600-foot level, native vegetation covered 33 percent of the land area in the Los Angeles Basin. The estimate for the upper limit of emissions from native vegetation in the summer was 52 tons per day; an additional 41 tons per day were estimated for urban vegetation.

Tnis information was generated by a multiagency, multidisciplinary research team funded by the California Air Resources Board, and the results were made available immediately to State and local pollution control authorities.



At most, 10 percent of the photochemically formed ozone recorded on this instrument results from hydrocarbons given off by trees and plants.

Predicting Fire Behavior

Can wildland fire behavior really be predicted? According to fire behavior scientists at the Intermountain Station, it depends on how accurate you expect the answer to be. The minute-by-minute movement of a fire will probably never be predictable--certainly not from weather conditions forecast many hours before the fire. Nevertheless, they say, practice and experienced judgment in assessing the fire environment, coupled with a systematic method of calculating fire behavior, yields surprisingly good results.

The Intermountain Station has published a manual, "How to Predict the Spread and Intensity of Forest and Range Fires," which is the result of many years of fundamental and applied research. It includes methods of assessing the major factors influencing fires and simplified methods of calculating rate of spread, fire intensity, fire size, and spotting distance. It contains maps of fire growth and guides for interpreting and informing others about expected fire behavior.

Information in the manual has been used for training fire behavior officers in all of the Nation's land management agencies, including those of many States.

Forest and range fire behavior can be predicted within limits. A new Intermountain Station manual gives the procedures.

Funds could be allocated more efficiently in a fire management budget if managers could measure the economic impact of wildfires more comprehensively than in the past. Because fires have different impacts on each product and amenity of wildlands, it has been difficult for fire managers to put a prefire value on these resources. North Central Station scientists, in cooperation with Michigan State University and the Wisconsin Department of Natural Resources, have now developed a system of appraising wildfire effects on private land that strikes a balance between comprehensiveness and ease of use.

The system incorporates positive, as well as negative, economic impacts of fires on timber, wildlife, recreation, ornamental trees, crops, equipment, and improvements. In addition, esthetic and environmental values are rated on a relative scale. Although the system incorporates many variables, only a few field measurements are required. Many complex factors such as stumpage prices, wildlife loss or benefit, and recreation values are precalculated for each county. So, although the system is comprehensive, it takes a manager less than 30 minutes to complete the appraisal for an average fire.

The system is operational in Wisconsin and is currently being evaluated for possible use throughout the Northeast. Because it is correct in theory, consistent in appraisal, and easy to use, the system is a step toward cheaper and more effective fire management.

After wildfires are under control, the next step is to appraise fire damage to trees and other resources. A new system allows this to be done simply.

To detect lightning fires in the West, spotter aircraft presently fly a fixed pattern over forested areas at a considerable cost. Recently, the Intermountain Station developed a computer system called Lightning Location and Fire Forecasting (LLAFFS), which indicates the probable locations of fires after lightning storms. The system will save considerable money by narrowing the search zone and reducing the time flown by spotter aircraft after a storm.

The system goes into action as the lightning strikes are occurring, sorts data from thousands of lightning strikes, and calculates the condition of the forest fuels in the path of the storm. Results are displayed on a computer printout. Using the printout and a transparent map overlay, fire dispatchers can determine areas where fires are most likely to start and send spotter aircraft right to them.

LLAFFS has already been tested by the Forest Service and the Bureau of Land Management and is expected to be in operation by the summer of 1984.

Scientists have developed a computer system to indicate the probable location of fires started by lightning.

Determining the Economic Costs of Fire Management Programs

Researchers at the Pacific Southwest Station have developed a procedure for estimating the economic or "opportunity" costs of fire management programs. The procedure enables fire control managers to combine the direct and indirect costs for fire management and convert them to per-hour costs for various levels of deployment.

The procedure is a major improvement over earlier attempts at cost estimation because it incorporates costs that are not typically included in accounting data. It is also flexible enough to be applied by different fire control organizations in their fire planning. The procedure divides costs among five basic fire management activities: fire prevention, detection, fuel treatment, initial attack, and suppression. So far, the procedure has been applied only to initial attack and suppression costs, but it is being developed for the other three activities. The technique is computerized and has been used to evaluate costs in three Forest Service Regions and in the State Forestry Departments of California, Oregon, and Montana.

Fire control organizations are using a new way of estimating the costs of initial attack and suppression.

Fire History Shows Prescribed Burning Can Be Useful

The recent discovery that fire has played a prominent historical role in the development of mixed conifer stands in the Southwestern United States opens up new prospects for using fire as a management tool in this productive ecosystem. Prescribed fire is commonly used to reduce fuels and alter plant succession in ponderosa pine forests, but is not widely used in the protection and management of mixed conifers. Fire history information developed by Rocky Mountain Station scientists on a 460-acre watershed in the White Mountains of Arizona now shows that prescribed fire can also be used in the management of the mixed conifer type.

Researchers counted tree rings to date fire scars on cross sections of 35 trees. The resulting composite history indicated that major fires burned over the area at roughly 22-year intervals for the 200-year period before 1900. Frequent small fires apparently burned on parts of the area between the major fire years. Now that land managers know that fire can be used in mixed conifer forests without doing more harm than good, they can go on to test the technique.

Fire-scarred trees provide historical data so forest managers can use prescribed fire effectively.

Prospect Good for Increasing Loblolly Pine Growth Through Seed Selection

The potential for increased plantation yield through seed source selection in loblolly pine is clearly demonstrated by research reported in two Southern Station publications. Forest managers generally use local seed sources of loblolly pine for planting in most areas of the South. Two large seed source studies in southern Arkansas, established by the Southern Station and industrial cooperators in the 1950's, now show that trees from most nonlocal seed sources grow faster than those from the local source. Maladaptation of nonlocal sources is possible, but after 25 years there is no evidence of poor adaptation in any but the most southern Gulf Coastal sources. Loblolly from the Atlantic Coastal Plain look particularly good in southern Arkansas, averaging 8 feet taller than the local source, and the yield is about 25 percent greater.

Forest managers in southern Arkansas and northern Louisiana now must carefully weigh this prospective gain against the possibility of future maladaptation locally. The Weyerhaeuser Company has been the first to announce a decision to use nonlocal loblolly pine seed from the North Carolina coastal plain on their Arkansas-Oklahoma land holdings. If they obtain a similar 25-percent growth increase, it will amount to a gain of about 1.5 billion cubic feet of wood over a 35-year rotation.

Trees from the South Carolina coastal plain (on the right) grow taller (70 feet) than more local Oklahoma trees (63 feet) after 25 years in southern Arkansas.

New Guides Improve Thinning of Shortleaf Pine

Immature shortleaf pine stands must be thinned to grow large-diameter trees quickly. Traditionally, how much you thin depends on basal area (the total cross-sectional area of all trees on an acre). Basal area alone, though, is not a good indicator of stand stocking (number of trees in a stand), and thinnings controlled by basal area may often leave a stand understocked. When crop tree thinnings are made, the number and spacing of crop trees are often selected without regard for future stand stocking.

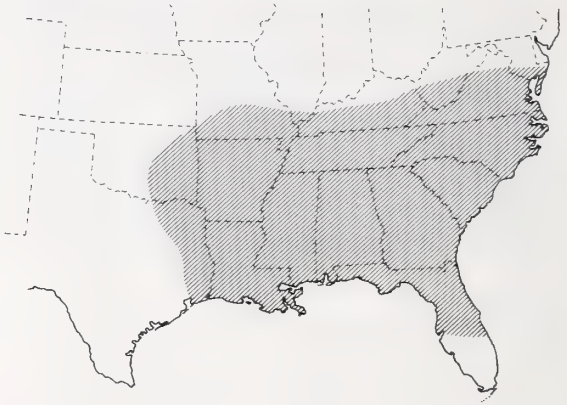
Thinning guides for shortleaf pine, recently developed by North Central Station scientists, provide managers with a new and effective tool to control thinnings. The guides are in the form of stocking charts that graphically define the relationships among basal area, number of trees, and the diameter of the tree of average basal area. The guides are based on research that defined the growing space requirements of shortleaf pine and are independent of stand age and site quality. The format used for the background chart was previously described in Agriculture Handbook 355, "Even-Aged Silviculture for Upland Central Hardwoods," and has recently been adopted for use throughout the National Forest System.

This 30-year-old stand was thinned according to the growing space it needs and will grow about a cord per acre per year in the next decade.

Kudzu is an imported vine that has spread over millions of acres in the South. First established on depleted farmland for erosion control and cattle grazing, this rapidly spreading pest now grows in forests, halting most wood production on infested lands. Kudzu is one of the few plants in the world that can stop natural plant succession and forest development. The commonly used method of eradication costs about $150 per acre, which has discouraged any concentrated control programs except on large industrial forests.

Cooperative research by the Southern and Southeastern Stations, State forestry agencies, Auburn University, and forest industry has come up with new herbicide treatments and application procedures that cost less--from $75 to $120 per acre. To get these results, over 25 herbicides were tested at seven locations. The new procedures developed by Forest Service scientists recommended liquid herbicides that can be applied by nonindustrial, private forest landowners using farm-tractor sprayers. Special application procedures are still being studied, but many recommendations are already available. Kudzu is exceedingly difficult to control because of its large, woody root. Older plants with 200- to 400-pound roots may require several herbicide applications over a 4- to 10-year period. But unless these procedures are followed and the vine is controlled, kudzu will continue to hamper tree growth on more and more potentially productive forest lands.

To spread word about the new treatments, signs giving treatment, number of applications, and costs have been placed at study areas along major highways. Field days have been held in Georgia and Alabama counties to show landowners how to control this pest. Response has been good because the new treatments are both cheap and environmentally acceptable.



Kudzu has invaded 2 million acres of farm and forest in the Southeast, where it can climb and kill trees 100 feet tall in a few years.

Conifer Yields Increase After Weeds Are Controlled

Dramatic gains in stem volume of Douglas-fir and ponderosa pine following use of chemicals to control weeds at the time of planting are reported by scientists at the Pacific Northwest Station. Seven herbicides and two combinations of herbicides were sprayed, using a backpack sprayer, on grasses and forbs competing with trees.

Benefits just discernible at 3 years after planting were increasing rapidly by the end of the sixth year. Volume increases on sprayed areas ranged from 349 to 650 percent higher than on areas that did not have the one-time application of chemicals. Especially effective for reducing competition from weeds were hexazinone and a mixture of dalapon and atrazine.

The research was conducted in the Wenatchee National Forest in eastern Washington. Young conifers in that area must compete successfully with established herbaceous plants that rapidly deplete available soil moisture to critical levels when summer drought starts. Control of grasses and forbs, either before or during planting, is usually essential for survival and growth of trees.

Few herbicides are registered in forestry for controlling grasses and forbs, however, and fewer still are really effective. Demonstration and publication of the research showing the effectiveness of the two herbicides have led to widespread interest by forest managers. They plan to use these herbicides for preparing planting sites to get better conifer growth and reduce mortality from competition and moisture stress.

Unless these dense grasses and weeds are controlled, they will use up the soil moisture needed by young conifers to survive on this logged area.

Legumes Stimulate Growth of Southern Pines

Nitrogen fertilization is rapidly gaining a following in southern forestry, and its use in pine plantations on poor soils might become routine if the costs could be reduced. In agriculture, supplies of soil nitrogen for succeeding crops are often increased by growing a crop of legumes--peanuts or clover or lespedeza. Scientists at the Southeastern Station hope they can adapt this practice to forestry. In the South, legumes must be able to survive hot, dry summers and fit into management schemes for southern pine plantations.

More than 50 species of highly promising nitrogen-fixing plants were tested in Virginia and the Carolinas. Of these, Sericea lespedeza, a perennial, survived well and competed successfully with native weed species--a requirement for legumes planted on forest sites. The species thrived with the application of phosphorus. Subterranean clover, an annual, reseeded itself and competed well with weeds for 3 or more years under favorable conditions.

When the crowns of planted pines come together at age 5 to 10 in a typical plantation, legumes die. If all goes as expected, however, the nitrogen they have fixed in the soil early in the life of the plantation is slowly taken up by the trees and stimulates their growth for many years.

Legumes, such as this Sericea lespedeza plant, take nitrogen from the air and turn it into compounds that stimulate pines to grow for years after the legumes have died.

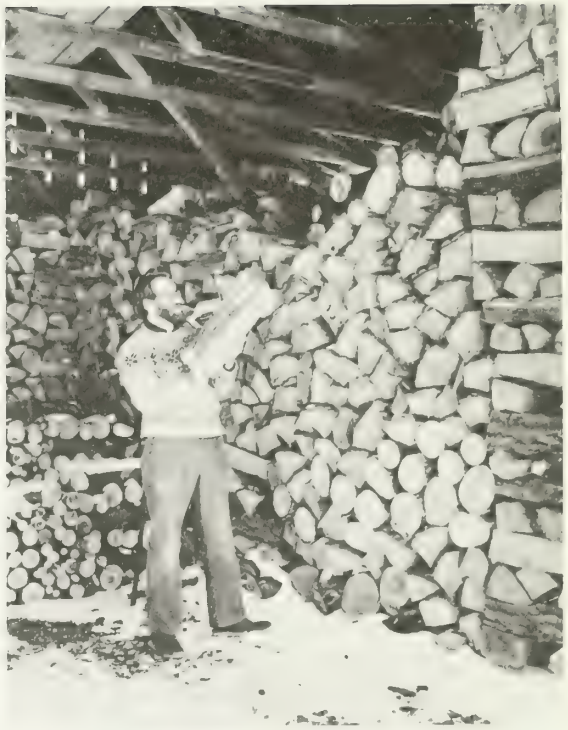
Home Stoves Have Increased the Value of U.S. Wood Resources

A Forest Service survey confirms that woodburning in home stoves and fireplaces is now greater than at any time since World War II. In 1981, Americans burned four or five times more fuelwood than 10 years ago.

The Forest Products Laboratory, aided by the University of Wisconsin Survey Laboratory, surveyed U.S. households to learn about residential woodburning and about sources of fuelwood. They found that fuelwood use increased to 42 million cords or 3 to 4 billion cubic feet in 1981. This was one-fourth the amount used for all other wood products. In the East, 95 percent of fuelwood was from relatively abundant hardwoods. In the West, 42 percent was hardwood.

About one-fourth of all U.S. households burned fuelwood. In rural areas, one-half of households burned wood. Half of all woodburners use fireplaces and burned one-fourth of all fuelwood. The other half of all woodburners burned wood in stoves or furnaces and consumed three-fourths of all fuelwood.

Most of the fuelwood was cut by household members. They said 30 percent of the fuelwood they cut was from non-woodland areas. Fuelwood cut from woodlands was salvaged mostly from dead or down trees and logging residue. Only 28 percent of the fuelwood came from standing live trees. The estimated value of wood sold commercially to household woodburners was $620 million during 1981.



Most fuelwood is cut at its source by household members; only a quarter of it is sold by vendors.

Bigger Bucks From Hardwoods in Piedmont Woodlands

The high cost of converting hardwood stands to pine in the South is causing foresters to reconsider hardwood management--especially on forests owned by nonindustrial, private landowners. Income from their woodlands typically comes only from stumpage or sales of cut products. They do not get the additional income that industrial landowners get from value added in primary processing. So given the obstacles, is better hardwood management feasible?

Researchers at the Southeastern Station analyzed forest survey plot information collected on the hardwood lands of woodland owners in the Piedmont Region stretching from Virginia to Georgia. The analysis covered more than 28 million acres of hardwoods. The researchers looked at size classes as well as opportunities for both silvicultural treatments and marketing the timber regionally.

The analysis showed that hardwood stands in the Piedmont can be managed by methods that are neither expensive nor intensive. By using guidelines from this analysis, Piedmont woodland owners can minimize out-of-pocket treatment costs, increase incomes from timber harvest, and upgrade the future stand. The guidelines should also prove valuable to State forestry agencies, extension foresters, and others who are concerned with forestry programs in the Southeastern Piedmont Region.

Piedmont woodland owners can upgrade the future stand by felling the cull trees and noncommercial saplings pictured here.

Huge Resource Inventory Underway in Alaska

A new inventory system is being used in Alaska to survey the natural resources on 32 million acres of the Tanana River Basin in interior Alaska, an area as large as Alabama. The four-phase system was developed by the Pacific Northwest Station.

The system uses imagery from satellites, small-scale and large-scale aerial photography plots, and a newly developed field plot system. In addition to the usual data on timber volume, growth, and mortality, the survey will gather information on vegetation composition, density, production, and biomass; wildlife habitat; fuels for fire management; and soils. A general vegetation and soils map for the Tanana Basin is being produced by the Soil Conservation Service working in cooperation with the Forest Service.

The 14-million-acre western Tanana Basin was surveyed in 1982, and interest in the data already is being expressed by Federal, State, and private agencies in Alaska. The data will help the Forest Service meet the requirements of the Resource Planning Act for a national inventory of renewable natural resources.

A crewmember takes a vegetation sample as part of an inventory of natural resources in interior Alaska.

The Economic Impacts of Increasing Timber Supply

A supply impact model developed by the Pacific Northwest Station will assist forest economists in assessing the significance of changes in the availability of resources needed to produce goods and services in a forest-dependent area.

Researchers adapted a conventional economic model to provide a convenient means to analyze changes in the import of primary inputs, such as logs or investment capital, into an area. Using data from Douglas County, Oreg. the research contrasted the effects of importing logs versus increasing local timber supply from National Forests. They found, for example, that the economic impacts on Douglas County from increasing the supply of local Forest Service timber far surpassed the economic benefits of importing logs from other areas. They also compared the effects of capital funds flowing into or out of the area.

This economic model can provide a more thorough analysis of the consequences of existing or proposed public forest management policies than is ordinarily done.

The impact on housing is only one of several economic impacts expected from increasing the supply of local Forest Service timber.

Assessing the Costs of Wildlife and Recreation

When budgets shrink and markets for forest outputs are poor, land managers must manage more cost effectively. This is especially true for protecting or improving nontimber resources such as wildlife and recreation. The first step in judging cost effectiveness is being able to assess or predict the costs of wildlife and recreation practices accurately.

Researchers from the Intermountain Station developed estimates and models to predict what wildlife management practices cost, especially those for improving habitat in the Forest Service's Northern Region. They found, for example, that costs ranged from as low as 5 cents per acre for fence maintenance to over $400 per acre for structures to help maintain fish spawning beds. Prescribed burning, the most common wildlife practice, cost $9.12 per acre (in 1972 dollars). To predict costs of prescribed burning, the researchers made a model based on such variables as acres burned, amount of fireline, and ignition technique.

To obtain recreation costs, researchers sampled more than half the recreation sites existing in the Northern Region in 1980. They put the costs of a whole range of recreation sites on an annual basis. Then they worked out models that will predict the annualized costs of different sized facilities. With a better idea of how to assess the cost of these wildlife and recreation activities, forest managers in the Northern Region can get the most out of their budget dollars.

Working out the annual costs of recreation sites like this is a must for tight, cost-effective management.

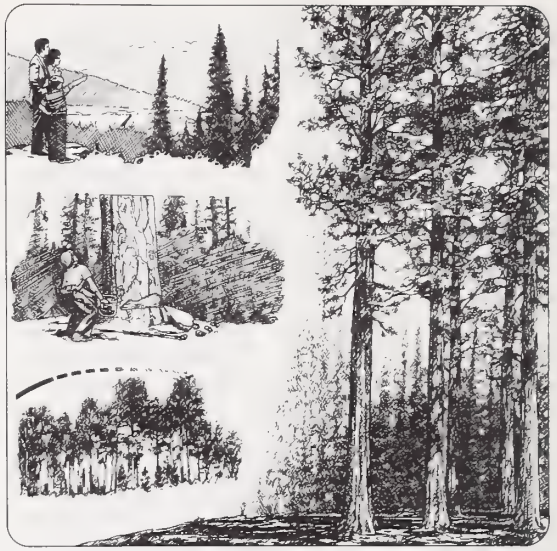
A new review of the Nation's renewable resource situation, completed as a part of the work underway to prepare a Forest Service program for submission to Congress in 1985, shows that the basic outlook continues much the same. The Nation is faced with the prospect of a growing imbalance between the supply of forest, range, and water products and the quantities that people would like to consume.

For timber, this means continuing increases in the prices of standing timber and timber products and the associated adverse impacts on the economy, the environment, and society. The outlook for water and range forage is similar in many respects. For users of wildlife, fish, and outdoor recreation resources, it will mean intensifying competition for the available reources.

This may well lead to shrinking populations of wildlife and fish; fewer and less satisfying outdoor recreation experiences; and overall, a gradual reduction in the quality of life that people have come to appreciate and expect.

The new review shows that this outlook is not inevitable. There is a very large forest, range, and water base that can supply demands for nearly all products, if it is more intensively managed and better utilized.

For example, these lands and waters have the physical capacity to supply sites for most types of outdoor recreation well in excess of expected increases in demands and to support much larger wildlife and fish populations. Under intensive management, rangelands have the capacity to produce nearly three times more forage, and forest lands more than twice the volume of the timber grown today.



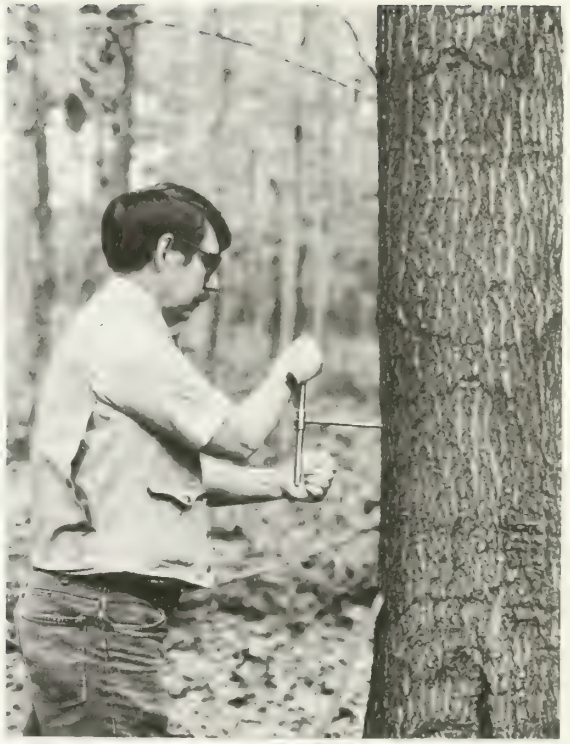
A continuing supply of renewable resources will depend on intensive management and better utilization.

Predicting Forest Stand Losses to Gypsy Moth

The gypsy moth is one of the most challenging problems facing forest managers in the Northeast today. People attempting to cope with the pest need help in predicting and evaluating its impacts so they can decide whether to attempt control efforts and where to concentrate them.

Some techniques for predicting forest stand losses to gypsy moth have already been developed by the Northeastern Station in cooperation with State and Private Forestry, Northeastern Area. These include the use of easy-to-measure stand characteristics. Typical of the models used for prediction is an equation for estimating the rate of change in timber value for forest stands exposed to an outbreak. The important stand measurements in this equation are ones easily taken by a forest manager--basal area per acre in tree species that the gypsy moth tends to avoid, percentage of stand basal area in trees 3.0 to 4.9 inches in diameter, and percentage of stand basal area in trees with poor crowns.

Impacts could become more serious as the pest spreads south and west into forests where oaks are more common and timber quality is better. In an attempt to measure impacts in advance of gypsy moth infestation, scientists have installed some 600 field plots in the heart of Pennsylvania's oak country. Besides learning whether these stands have a greater potential for economic loss, researchers will be able to refine existing models for better prediction of the insect's impact.



Gypsy moth infested forest plots are remeasured twice a year to gather data on growth, mortality, and stand changes.

The Forest Resources of Puerto Rico

Forest inventory scientists from the Southern Forest Experiment Station cooperatively completed the first inventory of Puerto Rico's forests. The island is one-third forested; half of the forest land protects watersheds and provides recreation opportunities and wildlife habitat, and half can produce timber. Despite wide diversity in species and site, more than half of the young forests contain sufficient stocking of good sapling and poletimber trees to produce manageable stands.

The inventory provides information for natural resource administrators and planners in government and private industry and helps identify research needs for secondary forest management in Puerto Rico. The analysis will help stimulate forestry development, which could in turn reduce the island's dependence on timber imports.

The inventory project has developed and refined techniques and procedures for conducting secondary forest assessments in tropical areas. The techniques have been used in inventory projects in a Commonwealth forest in Puerto Rico and an inventory of Hawaii and U.S. Trust Territories in the Pacific region and will be used in a forthcoming survey of St. Vincent Island in the Lesser Antilles.

A timber cruiser making estimates on a sample plot in a Puerto Rican forest.

State Income Taxes Mean Less Incentive for Forestry

Provisions in the Federal income tax law help to encourage forest management by the nonindustrial, private forest owner. These provisions encourage capital formation and reforestation and help compensate for the income lag and risk that timber growers must take. But what about State income taxes? What effect do they have on forest management by woodland owners in the South?

No studies had ever been made to assess the impact of State income taxes on forestry before economists at the Southern Station and Virginia Polytechnic Institute and State University began cooperative research on the subject in 1981. When the researchers analyzed State income tax provisions in the South, they found wide variations among States. The conventional wisdom was that State income taxes were so low that they did not make much difference either way. The researchers found differently--in many cases State income taxes tended to discourage timber investments.

To illustrate, the scientists computed the 1981 total tax liability (Federal plus State) for hypothetical forest owners with medium and high incomes and for managed and unmanaged forest land.

The State portion of the total tax burden ranged higher (up to 31 percent) for medium income forest owners who managed their forests than for owners who did not (up to 25 percent). The same trend was true for high-income forest owners--up to 19 percent for those who managed forests, but only up to 17 percent for those who did not. In short, the tax burden in most of the 12 States studied was greater for owners who managed their forests than for those who did not.

As a result of these findings, the Forest Service and Council of State Governments are recommending that States change their income tax laws, if necessary, to encourage better forest management by woodland owners in the South.

A Program To Analyze Forestry Investment

How profitable are investments in forestry? Landowners, foresters, and investors want to know about payoffs from growing timber and how these investments compare with other opportunities. Each tract of timberland, each landowner, and each market is different, and general guidelines are often not very useful. Also, these computations are complex and time consuming, especially when income taxes are considered. Each timber production option should be considered separately on its own merits. Now, a new model developed by the Southeastern Station and several universities makes it easy to figure the profitability of many forestry investments. This new method is a computer program, which can be run on a variety of readily available and inexpensive microcomputers.

The new program finds the present net value, benefit-cost ratio, and rate of return for timber investments with or without calculating the effects of Federal income tax. The model even figures complicated timber depletion and amortization amounts automatically. Investments as long as a century can be analyzed as easily as those lasting only a few years. No computer experience is necessary. The user must know when timber management activities will be done and how much they cost. Also, the user must supply timber harvest volume, current market price, and expected rates of change. Costs and benefits for nontimber aspects of forest production can also be included.

Foresters have discovered how easily it can be used to solve on-the-ground problems such as: How much can I pay for timberland and still make a profit? Does fertilization pay? Are past management activities cost effective? Government foresters are using the program to select the best management options on public land. Industrial foresters are using the model to analyze intensive forestry to boost yield and profits. University professors are even using it to teach students the fundamentals of forestry.

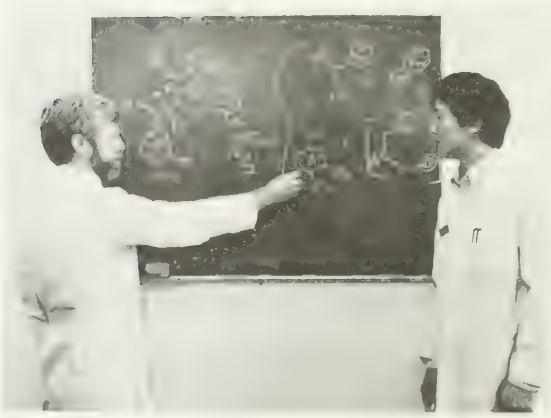
"Plugged in" for future timber dollars, a forester illustrates the ease of using the new investment program in a microcomputer.

First Lignin-Degrading Enzyme Discovered

Lignin is the complex natural plastic that cements and stiffens wood fibers. It comprises about 25 percent of wood and, next to cellulose, is the most abundant organic compound on earth. Until now, the biochemical mechanisms involved in its natural degradation during wood decay were essentially unknown.

Researchers at the Forest Products Laboratory, after years of painstaking basic research, have discovered a lignin-degrading enzyme. This enzyme is secreted by a fungus, Phanerochaete chrysosporium, one of the organisms causing white-rot decay in wood. During degradation, the enzyme causes oxygen from the air to be combined with lignin, and the result is a partial biological oxidation and subsequent breakdown of the lignin.

Discovery of this enzyme opens up possibilities for many applications of biotechnology in wood processing, such as pulping, bleaching pulps, converting lignin to useful chemicals, and cleaning up noxious lignin wastes from pulpmills and papermills. The increased knowledge of the decay process gained by this research may also lead to biological methods for controlling wood decay.



The discovery of the enzyme that breaks down the lignin in wood will have many applications.

Application of Cubic Scale Has Merits

Use of cubic scale, a means of measuring the volume of logs, is the best way to improve measurement systems in forestry and forest products. Pacific Northwest Station researchers concluded this after they developed techniques to evaluate the effectiveness of some 95 log rules currently used in the United States and Canada.

Basing their evaluation on recovery studies in mills where precise data on volume and value are available, the researchers became convinced that cubic scale gives the most accurate measure. They subsequently have developed cubic measurement techniques to derive log scale deductions for dead timber and to predict product volume and value from log scale. The techniques developed at the Pacific Northwest Station are being reviewed by a national committee, sponsored by the National Forest Products Association and the Forest Service, to choose the best of several possible measurement systems. The committee is currently developing a user's guide to apply cubic scale in all aspects of forestry and forest products.

The researchers conducted a workshop on using cubic scale in forestry in Portland, Oreg. in the spring of 1983. The high interest in this subject attracted 300 people from all over the United States, indicating the recognized need for a better measurement system in forestry and forest products.

One benefit of a cubic scale system is that the volume of a log would measure the same in every part of the country. At present, there are 95 log rules in use.

New Ways To Test the Strength of Light-Frame Floors and Walls

Wood-frame construction accounts for the use of about half of the lumber and panel products in the United States. Improved building techniques and more efficient types of materials are continually being proposed to offset the increasing cost of labor and materials.

One roadblock to using new materials and techniques is that building code representatives do not know how to determine the effect of these changes on the structural safety of the building. To provide this information, the industry needs structural analysis methods for new light-frame components.

Researchers at the Forest Products Laboratory, in cooperation with researchers from several universities, have devised new ways to analyze floors and walls and have verified these methods by testing. In addition, scientists have developed a revised computer program for truss analysis. The new structural analysis methods can accurately predict both the stiffness and strength of components under the types of loads that occupants and winds would put on a building in service.

The new methods will provide ways for builders to determine the effect of new types of framing, sheathing, or fastening materials on the strength of a building without the extensive testing of full-size components once required. Both suppliers and users will easily be able to determine how changes in materials or construction practices will affect both the serviceability and the safety of light-frame floors and walls.

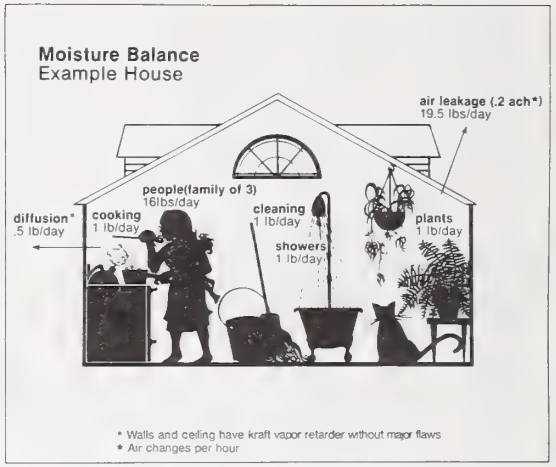
A computer program analyzes and predicts the strength of floor and wall components made of new material.

Managing Moisture in Wood-Frame Buildings

Over the past 10 years, rising energy costs have changed building construction practices. Buildings are better insulated and air leakage has been greatly reduced. These factors can combine to create moisture problems within walls, floors, and roofs of our wood-frame homes. To prevent damage to these structures, indoor humidity levels must be controlled. The moisture that results primarily from breathing, cooking, and bathing can be managed by ventilating the living space and using proper construction techniques.

Researchers at the Forest Products Laboratory are taking several approaches to ensure that moisture in our homes does not become a construction problem on a national scale. These include analytic studies and laboratory experiments along with field experiments under both controlled and natural conditions. A theoretical model, which includes the effect of air leakage, has been developed to analyze moisture movement through walls. A field study of moisture in attics indicates that present ventilation criteria, which were developed in the 1940's, may not be suitable for today's construction. Controlled field experiments describe the seasonal moisture changes in walls of several different types of houses in both a cold climate and a moist summer climate.

Manufacturers are using results of these studies of siding and insulation materials in their recommendations of construction techniques to help the homeowner avoid moisture problems.



Breathing, cooking, and bathing give off a surprising amount of moisture. New venting techniques may be needed to avoid problems.

Thinking Small: Harvesting Systems for the Interior West

Small softwood trees makes up a large part of the potentially available wood in the interior West. (Lodgepole pine alone occupies more than 12 million acres). Two kinds of small-timber stands prevail -- second growth, pole-sized trees, which are usually overstocked, and mature or overmature stagnated trees, which are grossly overstocked. Severe insect and disease infestations are widespread; many of these stands are a mixture of live and dead timber. The danger of catastrophic wildfire is on the increase in these stands.

In both kinds of stands, management objectives--whether of timber, water, wildlife habitat, or esthetics--depend upon some sort of harvesting. An efficient harvesting system could extend the wood resource as well as improve the management and protection of other resources.

Knowing that the costs of harvesting and handling small stems are often the main barrier to effective utilization, researchers at the Intermountain Station field-tested and evaluated several harvesting systems that handle small trees more efficiently than conventional harvesting and recover a mix of products.

The researchers found that the most effective systems incorporated feller-bunchers, grapple skidders (or farm tractors with grapples), and whole-tree chippers, with equipment to load and transport logs and chips.

The benefits are a clean logging site with no residue, utilization of all material harvested, and recovery of both logs and chips to obtain maximum value.

Grapple skidders, whole-tree processors, and chippers are the most efficient way to harvest small timber.

The National Forests of central Idaho have salmon and steelhead streams with steep, erodable mountain slopes separating them. In building forest roads on these slopes, forest engineers must ensure that sediment from the roads does not destroy fish habitat in nearby streams and that rising construction costs are kept as low as possible. In other words, there are stringent water quality standards to be met by the Forest Service in the most cost-efficient manner.

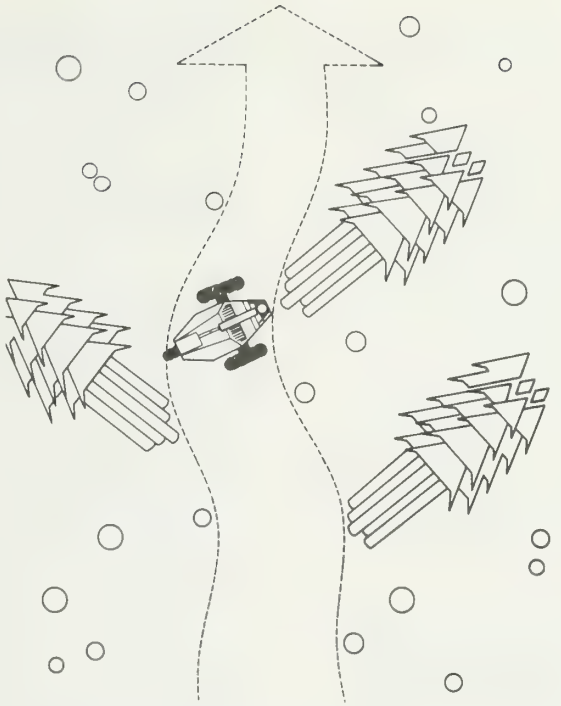
Engineering researchers at the Intermountain Station have begun to deal with erosion and cost reduction in several ways. By developing techniques for predicting surface erosion (given certain soils, vegetation, geologic conditions, road specifications, and climatic events), the cheapest alternative for reducing it can be worked out before construction. Also, determining what part of the disturbed area yields most of the sediment will help engineers reduce control costs. Studies on the Silver Creek Experimental Watershed, Boise National Forest, and the Nezperce National Forest showed that in some areas more sediment eroded from the cutslope and ditch, over the long term, than from the road surface. Knowing this, engineers can avoid the very high cost of rock surfacing the road and turn their attention to cheaper ways of reducing erosion from the cuts and ditches.

As this knowledge becomes available from research, the Nezperce National Forest and others in the Northern Region are putting it to work to help protect the fine fishing resource of the Columbia River system.

Simulated rainfall on a test section of forest road helps engineers find ways to reduce surface erosion.

Every year, thousands of acres of southern pine forests reach the age where some form of thinning is desirable. But increased labor costs and fewer woods workers discourage this important forest management operation. This creates a substantial demand for thinnning equipment that has high production capabilities, low costs, and does the job with minimal impact to the environment.

Southern Station research engineers have evaluated several recently developed machines. The results of these studies provide information on production rates, costs, and physical impacts to the soil and residual trees. The machines tested represent the current state-of-the-art in thinning equipment. The tests involve standardized procedures that provide information needed for direct comparisons of alternative equipment. The information can be used to evaluate and implement forest management plans that include either selective or systematic pattern methods of thinning. Several southern forest products companies are using the information in trials of plantation thinnings.



A small feller-buncher can remove trees selectively from both sides of a corridor less than 10 feet wide.

Environment

Watershed Management

2,4,5-T Assessment Team [Norris, Logan A., Leader]. The biologic and economic assessment of 2,4,5-T. Cooperative impact assessment report. Tech. Bull. 1671. Washington, DC: U.S. Department of Agriculture; 1982. 445 p. In cooperation with: State Agricultural Experiment Stations, Cooperative Extension Service, other State agencies, and U.S. Environmental Protection Agency.

Aldrich, James W.; Slaughter, Charles W. Soil erosion on subarctic forest slopes. J. Soil Water Conserv. 38(2): 115-118; 1983.

Antos, Joseph A.; Zobel, Donald B. Snowpack modification of volcanic tephra effects on forest understory plants near Mount St. Helens. Ecology 63(6): 1969-1972; 1982.

Auernhamer, Mark. Hydrologic effects for alternative methods of establishing pine on the Coastal Plain. In: Receiving water quality and quantity response to forest management practices. Tech. Bull. 388. New York: National Council of the Paper Industry for Air and Stream Improvement; 1982: 77-79.

Baker, Malchus B., Jr. Changes in streamflow in an herbicide-treated juniper watershed in Arizona. In: Vol. 12, Hydrology and water resoures in Arizona and the Southwest: Proceedings, 1982 meetings of the Arizona section--American Water Resources Association and the hydrology section--Arizona-Nevada Academy of Science; 1982 April 24; Tempe, AZ; 1982: 19-25.

Baker, Malchus B., Jr. Influence of clearing ponderosa pine on timing of snowmelt runoff. In: Proceedings, 50th Western snow conference; 1982 April 19-23; Reno, NV. Fort Collins, CO: Colorado State University Press; 1982: 20-26.

Baker, Malchus B., Jr.; Rogers, James J. Evaluations of water balance models on a mixed conifer watershed. Water Resour. Res. 19(2): 486-492; 1983.

Baross, John A.; Dahm, Clifford N.; Ward, Amelia K.; [and others]. Initial microbiological response in lakes to the Mt. St. Helens eruption. Nature 296(5852): 49-52; 1982.

Beasley, R. Scott. Water quality in south Arkansas forests. In: Proceedings, Specialty conference on environmentally sound water and soil management; 1982 July 20-23; Orlando, FL. Orlando, FL: American Society of Civil Engineers; 1982: 49-56.

Beasley, R. Scott. The effects of timber operations on streams in Arkansas. Discovery 1(2): 15-17; 1981.

Beasley, R. Scott; Granillo, Alfredo B. Sediment losses from forest practices in the Gulf Coastal Plain of Arkansas. In: Jones, Earle P., Jr., ed. Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 461-467.

Benson, Carl S. Reassessment of winter precipitation on Alaska's arctic slope and measurements on the flux of wind blown snow. UAG R-288. Fairbanks, AK: University of Alaska Geophysical Institute; 1982. 26 p.

Berg, Neil H. Field evaluation of some sand transport models. Earth Surf. Process. and Landforms 8: 101-114; 1983.

Berg, N. H. Layer and crust development in a central Sierra Nevada snowpack: some preliminary observations. In: Proceedings, 50th Western snow conference; 1982 April 19-23; Reno, NV. Fort Collins, CO: Colorado State University Press; 1982: 180-183.

Bergen, J. D.; Hutchinson, B. A.; McMillen, R. T.; [and others]. Observations on the relation of the shortwave reflectivity of the recently deposited snow to its physical properties. J. Clim. and Appl. Meteorol. 22(2): 193-200; 1983.

Bergman, James A. Two standard precipitation gages and the gamma transmission snow gage: a statistical comparison. Res. Note PSW-358. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station; 1982. 7 p.

Bernath, S. C.; Verry, E. S.; Brooks, K. N.; Ffolliott, P. F. Modeling water yield response to forest cover changes in northern Minnesota. In: Proceedings, Hydrological processes of forested areas: Canadian hydrology symposium '82; 1982 June 14-15; Fredericton, NB. Fredericton, NB: National Research Council Canada; 1982: 385-399.

Binkley, Dan; Cromack, Kermit, Jr.; Fredriksen, Richard L. Nitrogen accretion and availability in some snowbrush ecosystems. For. Sci. 28(4): 720-724; 1982.

Blackburn, W. H.; DeHaven, M. G.; Knight, R. W. Forest site preparation and water quality in Texas. In: Proceedings, Specialty conference on environmentally sound water and soil management; 1982 July 20-23; Orlando, FL. Orlando, FL: American Society of Civil Engineers; 1982: 57-66.

Bolander, Donald H. Chaparral in Arizona. In: Conrad, C. Eugene; Oechel, Walter C., tech. coords. Dynamics and management of Mediterranean-type ecosystems: Proceedings of the symposium; 1981 June 22-26; San Diego, CA. Gen. Tech. Rep. PSW-58. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station; 1982: 60-63.

Brewer, Mike S.; Lee, Richard; Helvey, J. David. Predicting peak streamflow from an undisturbed watershed in the Central Appalachians. Water Resour. Bull. 18(5): 755-759; 1982.

Brickler, Stan; Tunnicluff, Brock; Utter, Jack. Use and quality of wildland water: the case of the Colorado River Corridor in the Grand Canyon. West. Wildlands 9(2): 20-25; 1983.

Brinson, Mark M.; Lugo, Ariel E.; Brown, Sandra. Primary productivity, decomposition and consumer activity in freshwater wetlands. Ann. Rev. Ecol. and Systemat. 12: 123-161; 1981.

Brock, John H.; DeBano, Leonard F. Runoff and sedimentation potentials influenced by litter and slope on a chaparral community in central Arizona. In: Conrad, C. Eugene; Oechel, Walter C., tech. coords. Dynamics and management of Mediterranean-type ecosystems: Proceedings of the symposium; 1981 June 22-26; San Diego, CA. Gen. Tech. Rep. PSW-58. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station; 1982: 372-377.

Buckhouse, John C.; Gaither, Ronald E. Potential sediment production within vegetative communities in Oregon's Blue Mountains. J. Soil Water Conserv. 37(2): 120-122; 1982.

Campbell, Ralph E.; Ryan, Michael G. Precipitation and temperature characteristics of forested watersheds in central Arizona. Gen. Tech. Rep. RM-93. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1982. 12 p.

Christner, J.; Harr, R. D. Peak streamflows from the transient snow zone, western Cascades, Oregon. In: Proceedings, 50th Western snow conference; 1982 April 19-23; Reno, NV. Fort Collins, CO: Colorado State University Press; 1982: 27-38. (Also printed in: Tech. Bull. 388. New York, NY: National Council of the Paper Industry for Air and Stream Improvement Technology; 1982: 1-18.)

Clayton, James L. Evaluating slope stability prior to road construction. Res. Pap. INT-307. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 6 p.

Cline, Leo D.; Short, R. A.; Ward, J. V.; [and others]. Effects of highway construction on water quality and biota in an adjacent Colorado mountain stream. Res. Note RM-429. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1983. 11 p.

Corbett, Edward S. The impact of atmospheric deposition and land use practices on water quality from municipal watersheds. In: National acid precipitation assessment program effects: research review; 1983 February 21-25; Raleigh, NC. Raleigh, NC: North Carolina State University; 1983; 1-1: 29-35.

Dahm, Clifford N.; Baross, John A.; Lilley, Marvin D.; [and others]. Lakes in the blast zone of Mt. St. Helens: chemical and microbial responses following the May 18, 1980 eruption. In: Mt. St. Helens: effects on water resources: Proceedings of the conference; 1981 October 7-8; Jantzen Beach, OR. Rep. 41. Pullman, WA: State of Washington Water Research Center; Washington State University; and University of Washington; 1982: 98-137.

Dahm, Clifford N.; Baross, John A.; Ward, Amelia K.; [and others]. Initial effects of the Mount St. Helens eruption on nitrogen cycle and related chemical processes in Ryan Lake. Appl. and Environ. Microbiol. 45(5): 1633-1645; 1983.

Davis, Edwin A. Stream water nutrient changes associated with the conversion of Arizona chaparral. In: Conrad, C. Eugene; Oechel, Walter C., tech. coords. Dynamics and management of Mediterranean-type ecosystems: Proceedings of the symposium; 1981 June 22-26; San Diego, CA. Gen. Tech. Rep. PSW-58. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station; 1982: 333-338.

DeBano, Leonard F.; Dunn, Paul H. Soil and nutrient cycling in Mediterranean-type ecosystems: a summary and synthesis. In: Conrad, C. Eugene; Oechel, Walter C., tech. coords. Dynamics and management of Mediterranean-type ecosystems: Proceedings of the symposium; 1981 June 22-26; San Diego, CA. Gen. Tech. Rep. PSW-58. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station; 1982: 358-364.

DeHaven, Mark G.; Blackburn, Wilbert H.; Nieber, John L.; [and others]. Assessment of stormflow and water quality from undisturbed and site prepared forest land in east Texas. Tech. Rep. 122. College Station, TX: Texas A&M University Water Resources Institute; 1983. 125 p.

Dent, J. D.; Lang, T. E. A biviscous modified Bingham model of snow avalanche motion. In: Proceedings, 2d symposium on applied glaciology; 1982 August 23-27; Hanover, NH. Cambridge, England: International Glaciological Society; Ann. Glaciol. 4: 42-46; 1983.

Doty, Robert D. Annual precipitation on the Island of Hawaii between 1890 and 1977. Pac. Sci. 36(4): 421-425; 1982.

Doty, Robert D. Stream flow in relation to ohia forest decline on the island of Hawaii. Water Resour. Bull. 19(2): 217-221; 1983.

Douglass, James E. A summary of some results from the Coweeta Hydrologic Laboratory. In: Hamilton, Lawrence S.; King, Peter N., eds. Tropical forested watersheds hydrologic and soils response to major uses or conversions. Boulder, CO: Westview Press; 1983: Appendix B.

Douglass, James E. The potential for water yield augmentation from forest management in the eastern United States. Water Resour. Bull. 19(3): 351-358; 1983.

Douglass, James E.; Van Lear, David H. Prescribed burning and water quality of ephemeral streams in the Piedmont of South Carolina. For. Sci. 29(1): 181-189; 1983.

Douglass, James E.; Van Lear, David H.; Valverde, Carmen. Stormflow changes after prescribed burning and clearcutting pine stands in the South Carolina Piedmont. In: Jones, Earle P., Jr., ed. Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 454-460.

Driscoll, C. T.; Likens, G. E. Hydrogen ion budget of an aggrading forested ecosystem.Tellus 34: 283-292; 1982.

Dunn, Paul H.; Baker, Gladys E. Filamentous fungi of the psammon habitat at Enewetak Atoll, Marshall Islands. Mycologia 75: 839-853; 1983.

Eads, Rand E.; Thomas, Robert B. Evaluation of a depth proportional intake device for automatic pumping samplers. Water Resour. Bull. 19(2): 289-292; 1983.

Eschner, A. R.; Patric, J. H. Debris avalanches in eastern upland forests. J. For. 80(6): 343-347; 1982.

Falanruw, Marjorie V. C. Marine environment impact of land-based activities in the Trust Territory of the Pacific Islands. In: Marine and coastal processes in the Pacific: ecological aspects of coastal zone management, [papers presented at a UNESCO seminar]; 1980 July 14-17; Papua, New Guinea. Jakarta Pusat, Indonesia: Regional Office for Science and Technology for SE Asia; [1983]; 19-47.

Federer, C. A. Improving forest hydrology research. In: Proceedings, Hydrological processes of forested areas: Canadian hydrology symposium '82; 1982 June 14-15; Fredericton, New Brunswick. Fredericton, New Brunswick: National Research Council of Canada; 1982: 653-663.

Federer, C. A. Subjectivity in the separation of organic horizons of the forest floor. Soil Sci. Soc. Am. J. 46(5): 1090-1093; 1982.

Ferro, Valarie A. Storm related dilution of conductance in three hydrologically different water bodies. Water Resour. Bull. 18(2): 311-316; 1982.

Fitzgerald, J. W.; Johnson, D. W. Transformations of sulphate in forested and agricultural lands. In: More, A. I., ed. Proceedings, International sulphur '82 conference; 1982 November 14-17; London, England. London: The British Sulphur Corp., Ltd.; 1982; 1: 411-426.

Fitzgerald, J. W.; Strickland, T. C.; Swank, W. T. Metabolic fate of inorganic sulphate in soil samples from undisturbed and managed forest ecosystems. Soil Biol. Biochem. 14: 529-536; 1982.

Fox, T. R.; Burger, J. A.; Kreh, R. E.; Douglass, J. E. An overview of watershed and nutrient cycling research at the Reynolds Homestead Research Center. In: Jones, Earle P., Jr., ed. Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 468-476.

Furbish, David J.; Rice, Raymond M. Predicting landslides related to clearcut logging, northwestern California, U.S.A. Mt. Res. and Devel. 3(3): 253-259; 1983.

Gaither, Ronald E.; Buckhouse, John C. Infiltration rates of various vegetative communities within the Blue Mountains of Oregon. J. Range Manage. 36(1): 58-60; 1983.

Gary, Howard L. Stream water quality in a small commercial campground in Colorado. J. Environ. Health 45: 5-12; 1982.

Gary, Howard L.; Johnson, Steven R.; Ponce, Stanley L. Cattle grazing impact on surface water quality in a Colorado Front Range stream. J. Soil and Water Conserv. 38(2): 124-128; 1983.

Gifford, F. F.; Humphries, W.; Jaynes, R. A. A preliminary quantification of the impacts of aspen to conifer succession on water yield within the Colorado River Basin (a process aggravating the salt pollution problem). Hydraul. and Hydrol. Ser. URWL/H-83/01. Logan, UT: Utah State University, Utah Water Research Laboratory; 1983. 67 p.

Golladay, S. W.; Webster, J. R.; Benfield, E. F. Factors affecting food utilization by a leaf shredding aquatic insect: leaf species and conditioning time. Holarctic Ecol. 6: 157-162; 1983.

Halverson, H. G.; Corbett, E. S.; Heisler, G. M. USDA studies urban forests and municipal watersheds. Sci. Agric. 30(2): 13; 1983.

Halverson, Howard G. Cycling of materials from atmospheric deposition in urban forest ecosystems. In: National acid precipitation assessment program effects: research review; 1983 February 21-25; Raleigh, NC. Raleigh, NC: North Carolina State University; 1983; 2-3: 21-26.

Halverson, Howard G.; Zisa, Robert P. Measuring the response of conifer seedlings to soil compaction stress. Res. Pap. NE-509. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1982. 6 p.

Harr, R. Dennis. Fog drip in the Bull Run Municipal Watershed, Oregon. Water Resour. Bull. 18(5): 785-789; 1982.

Harr, R. Dennis. Potential for augmenting water yield through forest practices in western Washington and western Oregon. Water Resour. Bull. 19(3): 383-393; 1983.

Harris, A. Ray; Urie, Dean H. Changes in a sandy forest soil under northern hardwoods after 5 years of sewage effluent irrigation. Soil Sci. Soc. Am. J. 47(4): 800-805; 1983.

Haugen, R. K.; Slaughter, C. W.; Howe, K. E.; Dingman, S. L. Hydrology and climatology of the Caribou-Poker Creeks Research Watershed, Alaska. CRREL Rep. 82-26. Hanover, NH: U.S. Corps of Engineers, Cold Regions Research & Engineering Laboratory; 1982. 34 p.

Heede, B. H. Control of rills and gullies in off-road vehicle traffic areas. In: Webb, Robert H.; Wilshire, Howard G., eds. Environmental effects of off-road vehicles: impacts and management in arid regions. New York; Heidelberg; Berlin: Springer-Verlag; 1983: 245-264.

Heede, Burchard, H. Gully control: determining treatment priorities for gullies in a network. Environ. Manage. 6(5): 441-451; 1982.

Heede, Burchard H. Sediment source areas after timber harvest in mixed conifer. In: Morel-Seytoux, ed. Proceedings, 3d annual AGU Front Range branch hydrology days; 1983 April 19-21; Fort Collins, CO. CEP82-83HJM16. Fort Collins, CO: Colorado Water Resources Research Institute, Colorado State University; 1983: 139-156.

Heisler, Gordon M.; Schutzki, Robert E.; Zisa, Robert P.; [and others]. Effect of planting procedures on initial growth of Acer rubrum L. and Fraxinus pennsylvanicum L. in a parking lot. Res. Pap. NE-513. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1982. 6 p.

Helvey, J. D.; Hubbard, John; DeWalle, David R. Time trends in pH and specific conductance of streamflow from an undisturbed watershed in the Central Appalachians. In: Proceedings, Hydrological processes of forested areas: Canadian hydrology symposium '82; 1982 June 14-15; Fredericton, New Brunswick. Fredericton, New Brunswick: National Research Council Canada; 1982: 637-651.

Helvey, J. D.; Kochenderfer, J. N. Effects of acid precipitation on nutrient cycling and weathering of minerals in the Central Appalachians. In: National acid precipitation assessment program effects: research review; 1983 February 21-25; Raleigh, NC. Raleigh, NC: North Carolina State University; 1983; 2-3: 47-54.

Helvey, J. D.; Patric, J. H. Sampling accuracy of pit vs. standard rain gages on the Fernow Experimental Forest. Water Resour. Bull. 19(1): 87-89; 1983.

Hibbert, A. R.; Davis, E. A.; Knipe, O. D. Water yield changes resulting from treatment of Arizona chaparral. In: Conrad, C. Eugene; Oechel, Walter C., tech. coords. Dynamics and management of Mediterranean-type ecosystems: Proceedings of the symposium; 1981 June 22-26; San Diego, CA. Gen. Tech. Rep. PSW-58. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station; 1982: 382-389.

Hibbert, Alden R. Water yield improvement potential by vegetation management on western rangelands. Water Resour. Bull. 19(3): 375-381; 1983.

Hilgert, Jerry W.; Slaughter, Charles W. Water quality and streamflow in the Caribou-Poker Creeks Research Watershed, central Alaska, 1978. Res. Note PNW-405. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1983. 36 p.

Hornbeck, J. W.; Kropelin, W. K. Estimating biomass and nutrient removal from a northern hardwood harvest. J. For. 83(5): 287-288; 1982.

Howes, Steve; Hazard, John; Geist, J. Michael. Guidelines for sampling some physical conditions of surface soils. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Region; [1983]. 34 p.

Judson, Arthur. On the potential use of index paths for avalanche assessment. J. Glaciol. 29(101): 178-184; 1983.

Kattelmann, Richard C. Water yield improvement in the Sierra Nevada snow zone: 1912-1982. Proceedings, 50th Western snow conference; 1982 April 19-23; Reno, NV. Fort Collins, CO: Colorado State University Press; 1982: 39-48.

Kattelmann, Richard C.; Berg, Neil H. Two approaches to estimating regional snow water equivalent. In: Morel-Seytoux, ed. Proceedings, 3d annual AGU front range branch hydrology days; 1983 April 19-21; Fort Collins, CO. CEP82-83HJM16. Fort Collins, CO: Colorado State University; 1983: 86-103.

Kattelmann, Richard C.; Berg, Neil H.; Rector, John. The potential for increasing streamflow from Sierra Nevada watersheds. Water Resour. Bull. 19(3): 395-402; 1983.

Kaufmann, Merrill R.; Weatherred, James D. Determination of potential direct beam solar irradiance. Res. Pap. RM-242. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1982. 23 p.

Kenaga, E. E.; Norris, L. A. Environmental toxicity of TCDD. In: Tucker, Richard E.; Young, Alvin L.; Gray, Allan P., eds. Human and environmental risks of chlorinated dioxins and related compounds. Proceedings, International symposium on chlorinated dioxins and related compounds; 1981 October 25-29; Arlington, VA. New York: Plenum Publ. Corp.; 1983: 277-299.

Kirby, J. M.; Webster, J. R.; Benfield, E. F. The role of shredders in detrital dynamics of permanent and temporary streams. In: Fontaine, Thomas D., III; Bartell, Steven M., eds. Dynamics of lotic ecosystems. Ann Arbor, MI: Ann Arbor Press Scientific Publications; 1983: 425-435.

Knighton, M. Dean. Sulfur content of upland and wetland vegetation in north central Minnesota. Res. Note NC-277. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 4 p.

Knighton, M. Dean; Verry, Elon S. How to evaluate water impoundment sites for wildlife. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1983. 6 p.

Kochenderfer, J. N.; Wendel, G. W. Effects of fertilization and aspect on leaf biomass, leaf size, and leaf area index in Central Appalachian hardwood stands. In: Muller, Robert N., ed. Proceedings, 4th Central hardwood forest conference; 1982 November 8-10; Lexington, KY. Lexington, KY: University of Kentucky, Department of Forestry; 1982: 102-112.

Kochenderfer, J. N.; Wendel, G. W. Plant succession and hydrologic recovery on a deforested and herbicided watershed. For. Sci. 29(3): 293-299; 1983.

Lang, T. E.; Dent, J. D. Basal surface-layer properties in flowing snow. In: Proceedings, 2d symposium on applied glaciology; 1982 August 23-27; Hanover, NH. Cambridge, England: International Glaciological Society; Ann. Glaciol. 4: 158-162; 1983.

Lawson, Edwin R.; Hileman, Leslie H. Nurient distributions in runoff from Ouachita Mountain watersheds. In: Jones, Earle P., Jr., ed. Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 477-482.

Lisle, Thomas E. Effects of aggradation and degradation on riffle-pool morphology in natural gravel channels, northwestern California. Water Resour. Res. 18(6): 1643-1651; 1982.

Lisle, Thomas E. The recovery of stream channels in north coastal California from recent large floods. In: Hashagen, K. A., ed. Habitat disturbance and recovery: Proceedings of a symposium; 1981 January 29; San Luis Obispo, CA. San Francisco, CA: California Trout, Inc.; 1982: 31-41.

Lisle, Thomas E.; Lehre, Andre K.; Martinson, Holly A.; [and others]. Stream channel adjustments after the 1980 Mount St. Helens eruptions. In: Erosion control in volcanic areas: Proceedings of the symposium; 1982 July 6-9; Seattle, WA. Tech. Memo. PWRI 1908. Tokyo, Japan: Ministry of Construction Sabo Division; 1983: 33-72.

Lynch, James A.; Corbett, Edward S. Increasing summer storm peakflows following progressive forest clearcutting. In: Proceedings, Hydrological processes of forested areas: Canadian hydrology symposium '82; 1982 June 14-15; Fredericton, New Brunswick. Ottawa, Ontario: National Research Council of Canada; 1982: 561-574.

Marston, Richard A. The geomorphic significance of log steps in forest streams. Ann. Assoc. Am. Geogr. 72: 99-108; 1983.

Martinelli, M., Jr. An instrument to index snow surface hardness for predicting snow drifting. Cold Regions Sci. and Tech. 8: 79-82; 1983.

Martinelli, M., Jr.; Perla, R. Avalanche. In: McGraw-Hill Yearbook of Science and Technology. New York, NY: 1983; 101-103.

Mayack, David T.; Bush, Parshall B.; Neary, Daniel G.; Douglass, James E. Impact of hexazinone on invertebrates after application to forested watersheds. Arch. Environ. Contam. Toxicol. 11: 209-217; 1982.

McCashion, John D.; Rice, Raymond M. Erosion on logging roads in northwestern California: how much is avoidable? J. For. 81(1): 23-26; 1983.

McGurk, Bruce J.; Hawkins, Richard H. Comparison of four rainfall-runoff methods. In: Borrelli, John; Hasfurther, Victor R.; Burman, Robert D., co-eds. Proceedings, Specialty conference on advances in irrigation and drainage: surviving external pressures; 1983 July 20-22; Jackson, WY. New York: American Society of Civil Engineers; 1983: 476-483.

Megahan, Walter F. Hydrologic effects of clearcutting and wildfire on steep granitic slopes in Idaho. Water Resour. Res. 19(3): 811-819; 1983.

Megahan, Walter F.; Schweithelm, James. Appendix C: Guidelines for reducing negative impacts of logging. In: Hamilton, Lawrence S.; King, Peter N. Tropical forested watersheds: hydrologic and soils response to major uses or conversions. Boulder, CO: Westview Press; 1983: 143-154.

Megahan, Walter F.; Seyedbagheri, Kathleen A.; Dodson, Patrick C. Long-term erosion on granitic roadcuts based on exposed tree roots. Earth Surface Proc. and Landforms. 8: 19-28; 1983.

Melillo, J. M.; Aber, J. D.; Muratore, J. F. Nitrogen and lignin control of hardwood leaf litter decomposition dynamics. Ecology 63(3): 621-626; 1982.

Meyer, Judy L.; Johnson, Carol. The influence of elevated nitrate concentration on rate of leaf decomposition in a stream. Freshwater Biol. 13: 177-183; 1983.

Meyer, Judy L.; O'Hop, Joe. Leaf shredding insects as a source of dissolved organic carbon in headwater streams. Am. Midl. Nat. 109: 175-183; 1983.

Meyer, Judy L.; Tate, Cathy M. The effects of watershed disturbance on dissolved organic carbon dynamics of a stream. Ecology 64(1): 33-44; 1983.

Miller, James H.; Newton, Michael. Nutrient loss from disturbed forest watersheds in Oregon's coast range. Agro-Ecosystems 8: 153-157; 1983.

Mohler, Robert J.; Gifford, Richard O. A radiation-based water balance model for the pinyon-juniper forest of the Great Basin. In: Proceedings, 6th conference biometeorology and aerobiology and 16th conference agriculture and forest meteorology; 1983 April 25-28; Fort Collins, CO. Boston, MA: American Meteorological Society; 1983: 204-207.

Neary, Daniel G.; Bush, Parshall B.; Douglass, James E. Off-site movement of hexazinone in stormflow and baseflow from forest watersheds. Weed Sci. 31: 543-551; 1983.

Nelson, Norman S. A convenient membrane filtration system. Am. Lab. 15(5): 90-91; 1983.

Nichols, Dale S. Capacity of natural wetlands to remove nutrients from wastewater. J. Water Pollut. Control Fed. 55(5): 495-505; 1983.

Nichols, Dale S.; Prettyman, Don; Gross, Mary. Movement of bacteria and nutrients from pit latrines in the Boundary Waters Canoe Area Wilderness. Water, Air, and Soil Pollut. 20(2): 171-180; 1983.

Nik, Abdul Rahim Hj; Lee, Richard; Helvey, J. David. Climatological watershed calibration. Water Resour. Bull. 19(1): 47-50; 1983.

Norris, L. A.; Lorz, H. W.; Gregory, S. V. Forest chemicals. Gen. Tech. Rep. PNW-149. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1983. 95 p. (Meehan, William R., tech. ed.; Influence of forest and rangeland management on anadromous fish habitat in western North America; pt. 9).

Norris, Logan A. Behavior of herbicides in soil and water in the forest environment. In: Proceedings, Northeastern Weed Science Society; 1982 January 5-7; New York, NY. [Place of publication unknown]: [Publisher unknown]; Vol. 36, Suppl: 44-62; 1982.

Norris, Logan A.; Canutt, Paul R.; Newman, John F. Arsenic in the forest environment after thinning with MSMA and cacodylic acid. Bull. Environ. Contam. Toxicol. 30: 309-316; 1983.

O'Hop, Joe; Wallace, J. Bruce. Invertebrate drift, discharge, and sediment relations in a southern Appalachian headwater stream. Hydrobiologia 98: 71-84; 1983.

Ribblett, Gary C.; DeWalle, David R.; Helvey, J. David. Chemistry of leachate from six different Appalachian forest floor types subjected to simulated acid rain. University Park, PA: Pennsylvania State University, Institute for Research on Land and Water Resources; 1982. 40 p.

Richter, D. D.; Ralston, C. W.; Harms, W. R. Chemical composition and spatial variation of bulk precipitation of a coastal plain watershed in South Carolina. Water Resour. Res. 19(1): 134-140; 1983.

Riekerk, Hans. Impacts of silviculture on flatwoods runoff, water quality, and nutrient budgets. Water Resour. Bull. 19(1): 73-79; 1983.

Riekerk, Hans; Morris, Lawrence A. A constant-potential soil water sampler. Soil Sci. Soc. Am. J. 47(3): 606-608; 1983.

Rogerson, T. L.; Lawson, E. R. Hydrologic characteristics of mixed hardwood watersheds in the Boston Mountains. In: Muller, Robert N., ed. Proceedings, 4th Central hardwood forest conference; 1982 November 8-10; Lexington, KY. Lexington, KY: University of Kentucky, Department of Forestry; 1982: 344-349.

Ross, Douglas H.; Wallace, J. Bruce. Factors influencing the longitudinal distribution of larval Hydropsychidae (Trichoptera) in a southern Appalachian stream system (U.S.A.). Hydrobiologia 96: 185-199; 1982.

Schreiber, J. D.; Duffy, P. D. Sediment and nutrient transport from pine watersheds of the United States southern Coastal Plain. In: Hydrologic research basins and their use in water resources planning: Proceedings of an international symposium; 1982 September 21-23; Berne, Switzerland. Berne, Switzerland: Landeshydrologie; 1982: 725-734.

Seastedt, T. R.; Crossley, D. A., Jr. Nutrients in a forest litter treated with naphthalene and simulated throughfall: a field microcosm study. Soil Biol. Biochem. 15: 159-165; 1983.

Slaughter, C. W. Occurrence and recurrence of aufeis in an upland taiga catchment. In: Proceedings, 4th Canadian permafrost conference; 1981 March 2-6; Calgary, Alberta, Canada. Ottowa, Ontario, Canada: National Research Council of Canada; 1982: 182-188.

Sommerfeld, R. A. A branch grain theory of temperature gradient metamorphism in snow. J. Geophys. Res. 88(C2): 1484-1494; 1983.

Sommerfeld, R. A. Texture and temperature. Avalanche Rev. 1(4): 1, 8; 1983.

Sommerfeld, R. A. The big shear frame. Avalanche Rev. 1(2): 3; 1982.

Sommerfeld, R. A.; Gubler, H. Snow avalanches and acoustic emissions. In: Proceedings, 2d symposium on applied glaciology; 1982 August 23-27; Hanover, NH. Cambridge, England: International Glaciological Society; Ann. Glaciol. 4: 271-276; 1983.

Starr, G. Lynn; Geist, J. Michael. BDEN: a timesaving computer program for calculating soil bulk density and water content. Gen. Tech. Rep. PNW-153. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1983. 12 p.

Stednick, John D. Precipitation and streamwater chemistry in an undisturbed watershed in southeast Alaska. Res. Pap. PNW-291. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1981. 8 p.

Strickland, T. C.; Fitzgerald, J. W. Mineralization of sulphur in sulphoquinovose by forest soils. Soil Biol. Biochem. 15: 347-349; 1983.

Sturges, D. L. Shelterbelt establishment and growth at a windswept Wyoming rangeland site. Res. Pap. RM-243. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1983. 12 p.

Swank, Wayne T. Studi di ecologia E idrologia forestali. Padova, Italy: Universita Di Padova, Instituto Di Ecologia E Selvicoltura; 1982. 103 p.

Swank, Wayne T.; Caskey, William H. Nitrate depletion in a second-order mountain stream. J. Environ. Qual. 11(4): 581-584; 1982.

Swank, Wayne T.; Douglass, James E.; Cunningham, G. Bryant. Changes in water yield and storm hydrographs following commercial clearcutting on a southern Appalachian catchment. In: Hydrological research basins and their use in water resource planning: Proceedings of an international symposium; 1982 September 21-23; Berne, Switzerland. Berne, Switzerland: Sonderh. Landeshydrologie; 1982: 2: 583-594.

Swanson, F. J.; Collins, B.; Dunne, T.; Wicherski, B. P. Erosion of tephra from hillslopes near Mt. St. Helens and other volcanoes. In: Erosion control in volcanic areas: Proceedings of the symposium; 1982 July 6-9; Seattle and Vancouver, WA. Tech. Memo. PWRI 1908. Tokyo, Japan: Ministry of Construction, Government of Japan, Sabo Division; 1983: 183-221.

Swanson, F. J.; Janda, R. J. Summary of final discussions: symposium on erosion control in volcanic areas. In: Erosion control in volcanic areas: Pro ceedings of the symposium; 1982 July 6-9; Seattle and Vancouver, WA. Tech. Memo. PWRI 1908. Tokyo, Japan: Ministry of Construction, Government of Japan, Sabo Division; 1983: 361-371.

Swanson, Frederick J.; Fredriksen, Richard L. Sediment routing and budgets: implications for judging impacts of forestry practices. In: Swanson, Frederick J.; Janda, Richard J.; Dunne, Thomas; Swanston, Douglas N., tech. eds. Sediment budgets and routing in forested drainage basins: Proceedings of a workshop. Gen. Tech. Rep. PNW-141. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1982: 129-137.

Swanson, Frederick J.; Janda, Richard J.; Dunne, Thomas. Summary: sediment budget and routing studies. In: Swanson, Frederick J.; Janda, Richard J.; Dunne, Thomas; Swanston, Douglas N., tech. eds. Sediment budgets and routing in forested drainage basins: Proceedings of a workshop. Gen. Tech. Rep. PNW-141. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1982: 157-165.

Swanson, Frederick J.; Janda, Richard J.; Dunne, Thomas; Swanston, Douglas N., tech. eds. Introduction: Workshop on sediment budgets and routing in forested drainage basins. Gen. Tech. Rep. PNW-141. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1982. 165 p.

Swanson, Frederick J.; Lienkaemper, George W. Interactions among fluvial processes, forest vegetation, and aquatic ecosystems, South Fork Hoh River, Olympic National Park. In: Starkey, Edward E.; Franklin, Jerry F.; Matthews, Jean W., tech. coords. Ecological research in National Parks of the Pacific Northwest: Proceedings, 2d conference on scientific research in the National Parks; 1979 November; San Francisco, CA. Corvallis, OR: Oregon State University, Forest Research Laboratory; 1982: 30-34.

Swanston, D. N. Assessment of mass erosion risk from forest operations on steep terrain. In: Proceedings, International Union of Forestry Research Organizations, Division 3; 1982 June 28-July 2. [Place of publication unknown]: [Publisher name unknown]; [1982]; 255-286.

Swindel, Benee F.; Lassiter, Charles J.; Riekerk, Hans. Effects of clearcutting and site preparation on stormflow volumes of streams in Pinus elliottii flatwoods forests. For. Ecol. and Manage. 5(4): 245-253; 1983.

Swindel, Benee F.; Lassiter, Charles J.; Riekerk, Hans. Effects of different harvesting and site preparation operations on the peak flows of streams in Pinus elliottii flatwoods forests. For. Ecol. and Manage. 5(2): 77-86; 1983.

Tabler, R. D. Benefits and costs of snow fences on Wyoming Interstate 80. Transp. Res. Rec. 860: 13-20; 1982.

Tabler, R. D. Frequency distribution of annual peak water-equivalent on Wyoming snow courses. In: Proceedings, 50th Western snow conference; 1982 April 19-23; Reno, NV. Fort Collins, CO: Colorado State University Press; 1982: 139-148.

Tabler, R. D. Snow control and engineering in Japan. Rep. 81. Sapporo, Japan: Civil Engineering Research Institute, Hokkaido Development Bureau; 1983. 26 p.

Tabler, Ronald D. Using visual range data for highway operations in blowing snow. In: Aitken, George W., ed. Optical engineering for cold environments; 1983 April 7-8; Arlington, VA. Bellingham, WA: SPIE-The International Society for Optical Engineering; 1983: 414.

Tate, Cathy M.; Meyer, Judy L. The influence of hydrologic conditions and successional state on dissolved organic carbon export from forested watersheds. Ecology 64(1): 25-32; 1983.

Thomas, Robert B.; Eads, Rand E. Contamination of successive samples in portable pumping systems. Water Resour. Res. 19(2): 436-440; 1983.

Tritton, L. M.; Martin, C. W.; Hornbeck, J. W.; [and others]. Organic matter and nitrogen content of a central hardwood forest in Connecticut. In: Muller, Robert N., ed. Proceedings, 4th Central hardwood forest conference; 1982 November 8-10; Lexington, KY. Lexington, KY: University of Kentucky, Department of Forestry; 1982: 271-284.

Troendle, C. A. The potential for water yield augmentation from forest management in the Rocky Mountain Region. Am. Water Res. Assoc. Water Res. Bull. 19: 359-373; 1983.

Troendle, Charles A. The Deadhorse experiment: a field verification of the subalpine water balance model. Res. Note RM-425. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1983. 7 p.

Troendle, Charles A. The effects of small clearcuts on water yield from the Deadhorse watershed; Fraser, Colorado. In: Proceedings, 50th Western snow conference; 1982 April 19-23; Reno, NV. Fort Collins, CO: Colorado State University Press; 1982: 75-83.

Ulliman, Joseph; Singh, Harnek; Megahan, Walter. Remote sensing detection for planning on the Salmon River. In: America's hardwood forests--opportunities unlimited: Proceedings, 1982 convention of the Society of American Foresters; 1982 September 19-22; Cincinnati, OH. SAF 83-04. Bethesda, MD: Society of American Foresters; 1983: 133-137.

Ursic, S. J. Hydrologic changes after replacing hardwoods with southern pine. In: Proceedings, International symposium on hydrologic research basins and their use in water resources planning; 1982 September 21-23; Berne, Switzerland. Berne, Switzerland: Sonderh. Landeshydrologie; 1982: 735-746.

Van Lear, David H.; Douglass, James E. Water in the loblolly pine ecosystem-eastern region. In: Loblolly pine ecosystem (East Region): Proceedings of the symposium; 1982 December 8-10; Raleigh, NC. Raleigh, NC: North Carolina State University, School of Forest Resources; 1983: 285-296.

Verry, Elon S. Precipitation chemistry at the Marcell Experimental Forest in north central Minnesota. Water Resour. Res. 19(2): 454-462; 1983.

Verry, Elon S.; Lewis, Jeffrey R.; Brooks, Kenneth N. Aspen clearcutting increases snowmelt and storm flow peaks in north central Minnesota. Water Resour. Bull. 19(1): 59-67; 1983.

Verry, Elon S.; Timmons, D. R. Waterborne nutrient flow through an upland-peatland watershed in Minnesota. Ecology 63(5): 1456-1467; 1982.

Ward, Amelia K.; Baross, John A,; Dahm, Clifford N.; [and others]. Qualitative and quantitative observations on aquatic algal communities and recolonization within the blast zone of Mount St. Helens, 1980 and 1981. J. Phycol. 19: 238-247; 1983.

Weaver, Peter L. Watershed management in the Caribbean Islands--an outline of principles and concepts. In: Lugo, Ariel E.; Brown, Sandra, eds. Forestry in the Caribbean: Proceedings, 1st workshop of Caribbean foresters; 1982 May 24-28; Castries, St. Lucia. U.S. MAB Rep. 7. Washington, DC: U.S. Man and the Biosphere Program; 1982: 72-82.

Webster, Jackson R.; Waide, Jack B. Effects of forest clearcutting on leaf breakdown in a southern Appalachian stream. Freshwater Biol. 12: 331-344; 1982.

Wilson, Dale; Patten, Rick; Megahan, Walter F. Systematic watershed analysis procedure for Clearwater National Forest. Transp. Res. Rec. 892: 50-56; 1983.

Wildlife Habitat

Ault, Stacey C.; Stormer, Fred A. Seasonal food selection by scaled quail in northwest Texas. J. Wildl. Manage. 47(1): 222-228; 1983.

Ault, Stacey C.; Stormer, Fred A. A suction device for sampling seed availability. Wildl. Soc. Bull. 11(1): 63-65; 1983.

Balda, Russell P.; Gaud, William S.; Brawn, Jeffrey D. Predictive models for snag nesting birds. In: Davis, Jerry W.; Goodwin, Gregory A.; Ockenfels, Richard A., tech. coords. Snag habitat management: Proceedings of the symposium; 1983 June 7-9; Flagstaff, AZ. Gen. Tech. Rep. RM-99. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1983: 216-220.

Baldassarre, Guy A.; Whyte, Richard J.; Quinland, Eileen E.; Bolen, Eric G. Dynamics and quality of waste corn available to postbreeding waterfowl in Texas. Wildl. Soc. Bull. 11(1): 25-31; 1983.

Beasom, Samuel L.; LaPlant, Larry; Howard, V. W., Jr. Fecal pH of pronghorn and sheep as related to diet. J. Wildl. Manage. 46(4): 1101-1104; 1982.

Berntsen, Carl M.; Litton, R. Burton, Jr.; Packer, Paul E.; [and others]. New directions in management on the Bighorn, Shoshone and Bridger-Teton National Forests: 1983 update. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Region and Rocky Mountain Region; 1983. 90 p.

Blair, Robert M. Growth and nonstructural carbohydrate content of southern browse species as influenced by light intensity. J. Range Manage. 35(6): 756-760; 1982.

Blair, Robert M.; Alcaniz, Rene; Harrell, Austin. Shade intensity influences the nutrient quality and digestibility of southern deer browse leaves. J. Range Manage. 36(2): 257-264; 1983.

Bock, Carl E.; Bock, Jane H. Responses of birds and deer mice to prescribed burning in ponderosa pine. J. Wildl. Manage. 47(3): 836-840; 1983.

Brawn, Jeffrey D.; Elder, William H.; Evans, Keith E. Winter foraging by cavity nesting birds in an oak-hickory forest. Wildl. Soc. Bull. 10(3): 271-275; 1982.

Brawn, Jeffrey D.; Samson, Fred B. Winter behavior of tufted titmice. Wilson Bull. 95(2): 222-232; 1983.

Briggs, James I., Jr.; Garrett, Harold E.; Evans, Keith E. Oak-pine conversion and bird populations in the Missouri Ozarks. J. For. 80(10): 651-653, 659; 1982.

Brooks, Robert T. Vermont's first forest-wildlife habitat assessment. Habitat Highlights 3(3): 4; 1983.

Buech, Richard R. Modification of the Bailey live trap for beaver. Wildl. Soc. Bull. 11(1): 66-68; 1983.

Buech, Richard R. Nesting ecology and cowbird parasitism of clay-colored, chipping, and field sparrows in a Christmas tree plantation. J. Field Ornithol. 53(4): 363-369; 1982.

Bull, Evelyn L. Longevity of snags and their use by woodpeckers. In: Davis, Jerry W.; Goodwin, Gregory A.; Ockenfels, Richard A., tech. coords. Snag habitat management: Proceedings of a symposium; 1983 June 7-9; Flagstaff, AZ. Gen Tech. Rep. RM-99. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1983: 64-67.

Bull, Evelyn L.; Partridge, Arthur D.; Williams, Wayne G. Creating snags with explosives. Res. Note PNW-393. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1981. 4 p.

Bull, Evelyn L.; Skovlin, Jon M. Relationships between avifauna and streamside vegetation. In: Transactions, 47th North American wildlife and natural resources conference; 1982 March 29-31; Portland, OR. Washington, DC: Wildlife Management Institute; 1982: 496-506.

Cain, J. Richard; Beasom, Samuel L.; Rowland, Lenton O.; Rowe, Loyd D. The effects of varying dietary phosphorus on breeding bobwhites. J. Wildl. Manage. 46(4): 1061-1065; 1982.

Carey, Andrew B. Colorado tick fever in Rocky Mountain NP. Park Sci. 3(3): 16-17; 1983.

Cimon, Norm. A simple model to predict snag levels in managed forests. In: Davis, Jerry W.; Goodwin, Gregory A.; Ockenfels, Richard A., tech. coords. Snag habitat management: Proceedings of a symposium; 1983 June 7-9; Flagstaff, AZ. Gen. Tech. Rep. RM-99. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1983: 200-204.

Conner, Richard N.; Dickson, James G.; Williamson, J. Howard. A comparison of breeding bird census techniques with mist netting results. Wilson Bull. 95(2): 276-280; 1983.

Crawford, Hewlette S. Seasonal food selection and digestibility by tame white-tailed deer in central Maine. J. Wildl. Manage. 46(4): 974-982; 1982.

Crouch, Glenn L. Effects of commercial clearcutting of aspen on understory vegetation and wildlife habitat values in Southwestern Colorado. Res. Pap. RM-246. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1983. 8 p.

Crouch, Glenn L. Pocket gophers and reforestation on western forests. J. For. 80(10): 662-664; 1982.

Czaplewski, R.; Crowe, D.; McDonald, L. Sample sizes and confidence intervals for wildlife population ratios. Wildl. Soc. Bull. 1(2): 121-128; 1983.

Davis, Jerry W.; Goodwin, Gregory A.; Ockenfels, Richard A., tech. coords. Snag habitat management: Proceedings of the symposium; 1983 June 7-9; Flagstaff, AZ. Gen. Tech. Rep. RM-99. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1983: 226 p.

Dickson, James G. Birds in bottomland hardwood forests. In: Davis, David E., ed. CRC handbook of census methods for terrestrial vertebrates. Boca Raton, FL: CRC Press, Inc.; 1982: 299-300.

Dickson, James G.; Conner, Richard N.; Williamson, J. Howard. An evaluation of techniques for marking cardinals. J. Field Ornithol. 53(4): 420-421; 1982.

Dickson, James G.; Conner, Richard N.; Williamson, J. Howard. Snag retention increases bird use of a clear-cut. J. Wildl. Manage. 47(3): 799-804; 1983.

Ellis, David H. The peregrine falcon in Arizona: habitat utilization and management recommendations. Res. Rep. 1. Oracle, AZ: Institute for Raptor Studies; 1982. 24 p.

Ffolliott, Peter F. Implications of snag policies on management of southwestern ponderosa pine forests. In: Davis, Jerry W.; Goodwin, Gregory A.; Ockenfels, Richard A., tech. coords. Snag habitat management: Proceedings of the symposium; 1983 June 7-9; Flagstaff, AZ. Gen. Tech. Rep. RM-99. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1983: 28-32.

Finch, Deborah M. Brood parasitism of the Abert's towhee: timing, frequency, and effects. Condor 85: 355-259; 1983.

Finch, Deborah M. Interspecific nest use by aridland birds. Wilson Bull. 94(4): 582-584; 1982.

Finch, Deborah M. Rejection of cowbird eggs by crissal thrashers. Auk 99: 719-724; 1982.

Finch, Deborah M. Seasonal variation in nest placement of Abert's towhees. Condor 85: 111-113; 1983.

Floyd, T. J.; Mech, L. D.; Nelson, M. E. Deer in forested areas. In: Davis, David E., ed. CRC handbook of census methods for terrestrial vertebrates. Boca Raton, FL: CRC Press, Inc.; 1982: 254-256.

Franzblau, Mark A.; Collins, James P. Test of a hypothesis of territory regulation in an insectivorous bird by experimentally increasing prey abundance. Oecologia (Berl.) 46: 164-170; 1980.

Fritzell, Erik K.; Haroldson, Kurt J. Urocyon cinereoargenteus. Mammalian Species 189: 1-8; 1982.

Gardner, James E.; Gardner, Treva L. An inventory and evaluation of cave resources of Mark Twain National Forest. [Place of publication unknown]: Missouri Department of Conservation; 1982. 113 p.

Geist, J. Michael; Edgerton, Paul J.; Adams, A. W. "Bud". Elk pellets aren't all alike. Rangelands 5(1): 28-29; 1983.

Germano, David J.; Hungerford, Roger; Martin, S. Clark. Responses of selected wildlife species to the removal of mesquite from desert grassland. J. Range Manage. 36(3): 309-311; 1983.

Glinski, Richard L.; Grubb, Teryl G.; Forbis, Larry A. Snag use by selected raptors. In: Davis, Jerry W.; Goodwin, Gregory A.; Ockenfels, Richard A., tech. coords. Snag habitat management: Proceedings of the symposium; 1983 June 7-9; Flagstaff, AZ. Gen. Tech. Rep. RM-99. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1983: 130-133.

Grubb, Teryl G.; Kennedy, Charles E. Bald eagle winter habitat on southwestern National Forests. Res. Pap. RM-237. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1982. 13 p.

Grubb, Teryl G.; Rubink, Duane M.; Hoffman, Stephen W.; Forbis, Larry A. Management of breeding bald eagles in Arizona - problems and perspectives. In: Ingram, Terrence N., ed. Proceedings, Bald eagle conference on "Bald Eagle Restoration"; 1982 August 13-15; Rochester, NY. Tech. Rep. BED-82. Apple River, IL: Eagle Valley Environmentalists; 1982: 73-88.

Gunther, Pamela M.; Horn, Brenda S.; Babb, Geoffrey D. Small mammal populations and food selection in relation to timber harvest practices in the western Cascade Mountains. Northwest Sci. 57(1): 32-44; 1983.

Guthery, Fred S.; Stormer, Fred A. Brush, brush control, and wildlife in Texas. In: Proceedings, Great Plains Agricultural Council; 1982 June 7-9; North Platte, NE. Lincoln, NE: University of Nebraska Press; 1982: 1-6.

Guthery, Fred S.; Stormer, Fred A.; Pates, Jean M. Characterization of playas in central panhandle of Texas. In: Transactions, 47th North American wildlife and natural resources conference; 1982 March 29-31; Portland, OR. Washington, DC: Wildlife Management Institute; 1982: 516-527.

Hamel, Paul B.; LeGrand, Harry E., Jr.; Lennartz, Michael R.; Gauthreaux, Sidney A., Jr. Bird-habitat relationships on Southeastern forest lands. Gen. Tech. Rep. SE-22. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1982. 417 p.

Hanley, Thomas A. Black-tailed deer, elk, and forest edge in a western Cascades watershed. J. Wildl. Manage. 47(1): 237-242; 1983.

Hanley, Thomas A. Cervid activity patterns in relation to foraging constraints: western Washington. Northwest Sci. 56(3): 208-217; 1982.

Harrington, Fred H.; Mech, L. David. Fall and winter homesite use by wolves in northeastern Minnesota. Can. Field-Nat. 96(1): 79-84; 1982.

Harrington, Fred H.; Mech, L. David. Patterns of homesite attendance in two Minnesota wolf packs. In: Harrington, Fred H.; Paquet, Paul C., eds. Wolves of the world: perspectives of behavior, ecology, and conservation. Park Ridge, NJ: Noyes Publications; 1982: 81-105.

Harrington, Fred H.; Mech, L. David. Wolf pack spacing: howling as a territory-independent spacing mechanism in a territorial population. Behav. Ecol. Sociobiol. 12: 161-168; 1983.

Harris, Larry D.; Maser, Chris; McKee, Arthur. Patterns of old growth harvest and implications for Cascades wildlife. In: Transactions, 47th North American wildlife and natural resource conference; 1982 March 29-31; Portland, OR. Washington, DC: Wildlife Management Institute; 1982: 374-392.

Hawkes, Clifford L.; Chalk, David E.; Hoekstra, Thomas W.; Flather, Curt H. Prediction of wildlife and fish resources for national assessments and appraisals. Gen. Tech. Rep. RM-100. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1983. 21 p.

Healy, William M.; Nenno, Edward S. Minimum maintenance versus intensive management of clearings for wild turkeys. Wildl. Soc. Bull. 11(2): 113-120; 1983.

Hooper, Robert G.; Lennartz, Michael R. Roosting behavior of red-cockaded woodpecker clans with insufficient cavities. J. Field Ornithol. 54(1): 72-76; 1983.

Hooper, Robert G.; Niles, Lawrence J.; Harlow, Richard F.; Wood, Gene W. Home ranges of red-cockaded woodpeckers in coastal South Carolina. Auk 99: 675-682; 1982.

Hopkins, R. B.; Schwartz, M. D. Avian community studies in North Dakota. Am. Birds 35: 77, 79-84; 1982.

Huntley, Jimmy C. Squirrel tree den management: reducing incompatibility with timber production in upland hardwoods. In: Jones, Earle P., Jr., ed. Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 488-495.

Huntley, Jimmy C.; McGee, Charles E. Impact of fire on regeneration and wildlife habitat in upland hardwoods. In: America's hardwood forests--opportunities unlimited: Proceedings, 1982 convention of the Society of American Foresters; 1982 September 19-22; Cincinnati, OH. SAF 83-04. Bethesda, MD: Society of American Foresters; 1983: 158-162.

Huntley, Jimmy C.; Pugh, Robert R. Using life requirements, extensive inventory data, and IMGRID to determine wildlife habitat suitability on Catoosa Wildlife Management Area. In: Brann, Thomas B.; House, Louis O., IV; Land, H. Gyde, eds. Proceedings, National workshop on in-place resource inventories: principles and practices; 1981 August 9-14; Orono, ME. SAF 82-02. Bethesda, MD: Society of American Foresters; 1982: 718-722.

Irwin, Larry L.; Peek, James M. Elk habitat use relative to forest succession in Idaho. J. Wildl. Manage. 47(3): 664-672; 1983.

Johnson, Mark K.; Wofford, Helen; Pearson, Henry A. Digestion and fragmentation: influence on herbivore diet analysis. J. Wildl. Manage. 47(3): 877-879; 1983.

Kie, John G.; White, Marshall; Drawe, D. Lynne. Condition parameters of white-tailed deer in Texas. J. Wildl. Manage. 47(3): 583-594; 1983.

Kindschy, Robert R.; Sundstrom, Charles; Yoakum, James D. Wildlife habitats in managed rangelands--the Great Basin of southeastern Oregon: pronghorns. Gen. Tech. Rep. PNW-145. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1982. 18 p.

Kramp, Betty A.; Patton, David R.; Brady, Ward W. The effects of fire on wildlife habitat and species. RUN WILD Wildlife/Habitat Relationships, Wildlife Unit Tech. Rep. Albuquerque, NM: U.S. Department of Agriculture, Forest Service, Southwestern Region; 1983. 29 p.

Lautenschlager, R. A.; Crawford, H. S. Halter-training moose. Wildl. Soc. Bull. 11(2): 187-189; 1983.

Leckenby, Donavin A.; Isaacson, Dennis L. Identification and description of northeast Oregon elk habitat through radio telemetry and mapping by earth resources satellite. In: Britt, T. L.; Theobald, D. P., eds. Proceedings, western states elk workshop; 1982 February 22-24; Flagstaff, AZ. Phoenix, AZ: Western Association of Fish and Wildlife Agencies, Arizona Game and Fish Department; 1982: 151-156.

Leckenby, Donavin A.; Sheehy, Dennis P.; Nellis, Carl H.; [and others]. Wildlife habitats in managed rangelands--the Great Basin of southeastern Oregon: mule deer. Gen. Tech. Rep. PNW-139. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1982. 40 p.

Leckenby, Donavin A.; Toweill, Dale E. Response of forage species seeded for mule deer in western juniper types of south-central Oregon. J. Range Manage. 36(1): 98-103; 1983.

Lehmkuhl, John F.; Patton, David R. User's manual for the RUN WILD III data storage and retrieval system. RUN WILD Wildlife/Habitat Relationships, Wildlife Unit Tech. Rep. Albuquerque, NM: U.S. Department of Agriculture, Forest Service, Southwestern Region; 1982. 68 p.

Lyon, L. Jack. Road density models describing habitat effectiveness for elk. J. For. 81(9): 592-595, 613; 1983.

MacCracken, James G. Coyote foods in southern California suburb. Wildl. Soc. Bull. 10(3): 280-281; 1982.

Mech, L. D. Wolves (radio-tracking). In: Davis, David E., ed. CRC handbook of census methods for terrestrial vertebrates. Boca Raton, FL: CRC Press, Inc.; 1982: 227-228.

Mech, L. David; Nelson, Michael E.; Drabik, Harry F. Reoccurrence of caribou in Minnesota. Am. Midl. Nat. 108(1): 206-208; 1982.

Meehan, William R.; Thilenius, John F. Safety in bear country: protective measures and bullet performance at short range. Gen. Tech. Rep. PNW-152. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1983. 16 p.

Morrison, Michael L.; Meslow, E. Charles. Avifauna associated with early growth vegetation on clearcuts in the Oregon Coast Ranges. Res. Pap. PNW-305. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1983. 12 p.

Mowry [Mowrey], Robert A. The northern flying squirrel in Alaska. Wildl. Noteb. Ser. Juneau, AK: Alaska Department of Fish and Game; 1982. 2 p.

Nabhan, Gary P.; Rea, Amadeo M.; Reichhardt, Karen L.; [and others]. Papago influences on habitat and biotic diversity: Quitovac oasis ethnoecology. J. Ethnobiol. 2(2): 124-143; 1982.

Nixon, Charles M.; McClain, Milford, W.; Landes, Robert K.; [and others]. Response of suppressed hickories to release cutting. Wildl. Soc. Bull. 11(1): 42-46; 1983.

Norris, Douglas J.; Elder, William H. Decline of the roadrunner in Missouri. Wilson Bull. 94(3): 354-355; 1982.

Norris, Douglas J.; Elder, William H. Distribution and habitat characteristics of the painted bunting in Missouri. Trans. Missouri Acad. Sci. 16: 77-83; 1982.

Nowakowski, Nancy A.; Ffolliott, Peter F.; Patton, David R. Livestock-wildlife interactions in the Southwest. RUN WILD Wildlife/Habitat Relationships, Wildlife Unit Tech. Rep. Albuquerque, NM: U.S. Department of Agriculture, Forest Service, Southwestern Region; 1982. 10 p.

Patton, David R. Management applications of biotic community data. In: Brown, David E., ed. Biotic communities of the American Southwest-United States and Mexico. Desert Plants 4(1-4); 1982: 7.

Patton, David R. The Forest Service's program of range and wildlife habitat research in the Southwest. In: Patton, David R.; [and others], tech. coords. Proceedings, Wildlife and range research needs in northern Mexico and southwestern United States workshop; 1981 April 20-24; Rio Rico, AZ: Gen. Tech. Rep. WO-36. Washington, DC: U.S. Department of Agriculture, Forest Service; 1983: 67-70.

Patton, David R.; de la Puente E., Jose M.; Ffolliott, Peter S.; [and others]. Proceedings, Wildlife and range research needs in northern Mexico and southwestern United States workshop; 1981 April 20-24; Rio Rico, AZ: Gen. Tech. Rep. WO-36. Washington, DC: U.S. Department of Agriculture, Forest Service; 1983. 108 p.

Peterson, Steven R. A preliminary survey of forest bird communities in northern Idaho. Northwest Sci. 56(4): 287-298; 1983.

Platts, William S. Livestock and riparian-fishery interactions: what are the facts. In: Transactions, 47th North American wildlife and natural resources conference; 1982 March 29-31; Portland, OR. Washington, DC: Wildlife Management Institute; 1982: 507-515.

Powell, Roger A. Hunting behavior and food requirements of the fisher (Martes pennanti). In: Chapman, Joseph A.; Pursley, Duane, eds. Proceedings, Worldwide furbearer conference; 1980 August 3-11; Frostburg, MD. Frostburg, MD: Appalachian Environmental Laboratory; 1981; 1: 883-917.

Powell, Roger A. The fisher: life history, ecology, and behavior. Minneapolis, MN: University of Minnesota Press; 1982. 217 p.

Probst, John R.; Rakstad, Donald; Brosdahl, Kathy. Diversity of vertebrates in wildlife water-impoundments on the Chippewa National Forest. Res. Pap. NC-235. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1983. 22 p.

Ralph, C. John. Birds of the forest. Nat. Hist. 91(12): 40-45; 1982.

Rasmussen, William O.; Ffolliott, Peter F. A model to predict snag development. Wildl. Soc. Bull. 11(3): 291-292; 1983.

Rausch, R. L.; Maser, C.; Hoberg, E. P. Gastrointestinal helminths of the cougar, Felis concolor L., in northeastern Oregon. J. Wildl. Dis. 19(1): 14-19; 1983.

Reinecke, Kenneth J.; Stone, Timothy L.; Owen, Ray B., Jr. Seasonal carcass composition and energy balance of female black ducks in Maine. Condor 84: 420-426; 1982.

Reynolds, Richard T. Management of western coniferous forest habitat for nesting Accipiter hawks. Gen. Tech. Rep. RM-102. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1983. 7 p.

Reynolds, Richard T. North American Accipiter hawks. In: Davis, David E., ed. CRC handbook of census methods for terrestrial vertebrates. Boca Raton, FL: CRC Press Inc.; 1982: 288-289.

Reynolds, Richard T.; Meslow, E. Charles; Wight, Howard M. Nesting habitat of coexisting Accipiter in Oregon. J. Wildl. Manage. 46(1): 124-138; 1982.

Rogers, Lynn L.; Applegate, Roger D. Dispersal of fruit seeds by black bears. J. Mammal. [Gen. Notes] 64(2): 310-311; 1983.

Sakai, Howard F. The diversity of nesting sites utilized by the 'Apapane. 'Elepaio 44(1): 2-5; 1983.

Schaid, Tim A.; Uresk, Daniel W.; Tucker, W. Lee; Linder, Raymond L. Effects of surface mining on the vesper sparrow in the northern Great Plains. J. Range. Manage. 36(4): 500-503; 1983.

Scott, Virgil E.; Crouch, Glenn L.; Whelan, Jill A. Responses of birds and small mammals to clearcutting in a subalpine forest in central Colorado. Res. Note RM-422. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1982. 6 p.

Scott, Virgil E.; Gottfried, Gerald J. Bird response to timber harvest in a mixed conifer forest in Arizona. Res. Pap. RM-245. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1983. 8 p.

Scott, Virgil E.; Oldemeyer, John L. Cavity nesting bird requirements and responses to snag cutting in ponderosa pine. In: Davis, Jerry W.; Goodwin, Gregory A.; Ockenfels, Richard A., tech. coords. Snag habitat management: Proceedings of the symposium; 1983 June 7-9; Flagstaff, AZ. Gen. Tech. Rep. RM-99. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1983: 19-23.

Severson, Kieth E.; Medina, Alvin L. Deer and elk habitat management in the Southwest. J. Range Manage. Monogr. 2: 63 p.; 1983.

Shafer, Donna M.; Ffolliott, Peter F.; Patton, David R. Management of riparian vegetation for southwestern wildlife. RUN WILD Wildlife/Habitat Relationships, Wildlife Unit Tech. Rep. Albuquerque, NM: U.S. Department of Agriculture, Forest Service, Southwestern Region; 1982. 20 p.

Skovlin, Jon M.; Edgerton, Paul J.; McConnell, Burt R. Elk use of winter range as affected by cattle grazing, fertilizing, and burning in southeastern Washington. J. Range Manage. 36(2): 184-189; 1983.

Stormer, Fred A.; Guthery, Fred S. Irrigation and wildlife in the southern and central Great Plains. In: Proceedings, Great Plains Agricultural Council; 1982 June 7-9; North Platte, NE. Lincoln, NE: University of Nebraska Press; 1982: 41-48.

Szaro, Robert C.; Jakle, Martin D. Comparison of varible circular-plot and spot-map methods in desert riparian and scrub habitats. Wilson Bull. 94(4): 546-550; 1982.

Thill, Ronald E.; Ffolliott, Peter F.; Patton, David R. Deer and elk forage production in Arizona mixed conifer forests. Res. Pap. RM-248. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1983. 13 p.

Thomas, Jack Ward. Needs for and approaches to wildlife habitat assessment. In: Transactions, 47th North American wildlife and natural resources conference; 1982 March 29-31; Portland, OR. Washington, DC: Wildlife Management Institute; 1982: 35-46.

Thomas, Jack Ward. Species/habitat relationships--a key to considering wildlife in planning and land management decisions. In: Mason, William T., Jr., tech. ed. Research on fish and wildlife habitat. EPA-600/8-82-002. Washington, DC: U.S. Environmental Protection Agency, Office of Research and Development; 1983: 27-36.

Tomback, Diana F. Dispersal of whitebark pine seeds by Clark's nutcracker: a mutualism hypothesis. J. Anim. Ecol. 51: 451-467; 1982.

Vahle, J. Robert; Patton, David R. Red squirrel cover requirements in Arizona mixed conifer forests. J. For. 81(1): 14-15, 22; 1983.

Van Horne, Beatrice. Demography of the longtail vole Microtus longicaudus in seral stages of coastal coniferous forest, southeast Alaska. Can. J. Zool. 60(7): 1690-1709; 1982.

Van Horne, Beatrice. Niches of adult and juvenile deer mice (Peromyscus maniculatus) in seral stages of coniferous forest. Ecology. 63(4): 992-1003; 1982.

Van Horne, Beatrice. Summertime activity pattern of the longtail vole in Alaska. Holarct. Ecol. 6(2): 199-203; 1983.

Verch, Richard L. Some implications of Populus intensive culture on nongame birds. In: Hansen, Edward A., comp. Intensive plantation culture: 12 years research. Gen. Tech. Rep. NC-91. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1983: 110-114.

Verner, Jared; Lehman, Robert N. Identifying individual bald eagles with voiceprints: a feasibility study. Res. Note PSW-359. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station; 1982. 5 p.

Verner, Jared; Ritter, Lyman V. Current status of the brown-headed cowbird in the Sierra National Forest. The Auk 100: 355-368; 1983.

Voth, Elver H.; Maser, Chris; Johnson, Murray L. Food habits of Arborimus albipes, the white-footed vole, in Oregon. Northwest Sci. 57(1): 1-7; 1983.

Ward, A. Lorin. Mule deer behavior in relation to fencing and underpasses on Interstate 80 in Wyoming. Transp. Res. Rec. 859: 8-13; 1982.

Ward, A. Lorin. Multiple use of timbered areas: views of a wildlife manager specifically for deer and elk. In: Timber harvesting in the central Rockies: problems and opportunities; 1983 January 4-6; Fort Collins, CO. Publ. XCM-87. Fort Collins, CO: Colorado State Univeristy, Cooperative Extension Service; 1983: 269-291.

Welch, Bruce L.; McArthur, E. Durant; Davis, James N. Mule deer preference and monoterpenoids (essential oils). J. Range Manage. 36(4): 485-487; 1983.

Whitaker, John O., Jr.; Cross, Stephen P.; Maser, Chris. Food of vagrant shrews (Sorex vagrans) from Grant County, Oregon, as related to livestock grazing pressures. Northwest Sci. 57(2): 107-111; 1983.

Whitaker, John O., Jr.; Cross, Stephen P.; Skovlin, John M.; Maser, Chris. Food habits of the spotted frog (Rana pretiosa) from managed sites in Grant County, Oregon. Northwest Sci. 57(2): 147-154; 1983.

Whitaker, John O., Jr.; Yunker, Conrad E.; Maser, Chris. Acarine ectoparasites (mites) of bats of Oregon. Northwest Sci. 57(2): 97-106; 1983.

White, Susan M.; Flinders, Jerran T.; Welch, Bruce L. Preference of pygmy rabbits (Brachylagus idahoensis) for various populations of big sagebrush (Artemisia tridentata). J. Range Manage. 35(6): 724-726; 1982.

Wiley, James W. The Puerto Rican parrot: (Amazona vittata): its decline and the program for its conservation. In: Pasquir, Roger F., ed. Conservation of new world parrots: Proceedings of the ICBP parrot working group meeting; 1980 [dates of meeting unknown]; St. Lucia. Tech. Publ. 1. Washington, DC: Smithsonian Institution Press; 1980: 133-159.

Wiley, James W. The role of captive propagation in the conservation of the Puerto Rican parrot. In: Schulman, G. L., ed. Proceedings, Jean Delacour/IFCB symposium on breeding birds in captivity; [dates of meeting unknown]; [place of meeting unknown]. Los Angeles, CA: International Foundation for Conservation of Birds; 1983: 441-453.

Williams, Daniel F.; Braun, Suzanne E. Comparison of pitfall and conventional traps for sampling small mammal populations. J. Wildl. Manage. 47(3): 841-845; 1983.

Wolff, Jerry O. Refugia, dispersal, predation, and geographic variation in snowshoe hare cycles. In: Myers, K.; MacInnes, C. D., eds. Proceedings, World lagomorph conference; 1979 August 12-16; Guelph, Ontario. [Place of publication unknown]: [Publisher name unknown]; 1982: 441-449.

Range

Alexander, Lynn E.; Uresk, Daniel W.; Hansen, Richard M. Summer food habits of domestic sheep in southeastern Montana. J. Range Manage. 36(3): 307-308; 1983.

Baker, R. L.; Powell, Jeff. Effect of atrazine, fertilizer, and 2,4-D on winter grazing preferences of beef cows on north central Oklahoma tallgrass prairie. J. Range Manage. 35(4): 505-507; 1982.

Belcher, David W.; Holdaway, Margaret R.; Brand, Gary J. A description of STEMS: the stand and tree evaluation and modeling system. Gen. Tech. Rep. NC-79. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 18 p.

Benedict, Nathan B. Mountain meadows: stability and change. Madrono 29(3): 148-153; 1982.

Blaisdell, James P.; Murray, Robert B.; McArthur, E. Durant. Managing of Intermountain rangelands--sagebrush-grass ranges. Gen. Tech. Rep. INT-134. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 41 p.

Bryant, Larry D. Response of livestock to riparian zone exclusion. J. Range Manage. 35(6): 780-785; 1982.

Bryant, Larry D.; Skovlin, Jon M. Effect of grazing strategies and rehabilitation on an eastern Oregon stream. In: Habitat disturbance and recovery: Proceedings of a symposium; 1981 January 29; San Luis Obispo, CA. San Francisco, CA: California Trout, Inc.; 1982: 27-30.

Buckhouse, J. C.; Bohn, C. C. Response to coliform bacteria concentration to grazing management. In: 1983 progress report--research in rangeland management. Spec. Rep. 682. Corvallis, OR: Oregon State University, Agricultural Experiment Station; 1983: 1-7. In cooperation with: U.S. Department of Agriculture, Agricultural Research Service.

Buckhouse, J. C.; Bolognani, D. A. Hydrologic response following rangeland improvement practices in eastern Oregon. In: 1982 progress report--research in rangeland management. Spec. Rep. 663. Corvallis, OR: Oregon State University, Agricultural Experiment Station; 1982: 10-12. In cooperation with: U.S. Department of Agriculture, Agriculture Research Service.

Buckhouse, J. C.; Mattison, J. L. Sediment potentials and high intensity storms on rangelands. In: Research in rangeland management. Spec. Rep. 586. Corvallis, OR: Oregon State University, Agricultural Experiment Station; 1980: 16-19.

Byington, Evert; Child, Dennis; Byrd, Nathan; [and others]. Management of southern U.S. farms for livestock grazing and timber production on forested farmlands and associated pasture and range lands. Morrilton, AR: Winrock International; 1983. 60 p.

Cable, Dwight R. Partial defoliation stimulates growth of Arizona cottontop. J. Range Manage. 35(5): 591-593; 1982.

Cedarleaf, Joy D.; Welch, Bruce L.; Brotherson, Jack D. Seasonal variation of monoterpenoids in big sagebrush (Artemisia tridentata). J. Range Manage. 36(4): 492-494; 1983.

Clark, Alexander, III. Predicting biomass production in the South. In: Hotvedt, James D.; Jackson, Ben D., eds. Predicting growth and yield in the mid-south: Proceedings, 31st annual forestry symposium; 1982 April 13-14; Baton Rouge, LA. Baton Rouge, LA: Louisiana State University, Division of Continuing Education, School of Forestry and Wildlife Management; 1983: 119-139.

Clark, Alexander, III. Status of biomass estimation of southern hardwood species and stands. In: Baldwin, V. C., Jr.; Lohrey, R. E., eds. Proceedings, 1982 Southern forest biomass working group workshop; 1982 June 16-18; Alexander, LA. Baton Rouge, LA: Louisiana State University; 1982: 3-15.

Clary, Warren P. Interfacing physical data and economics. In: Wagstaff, Fred J., comp. Proceedings, Range economics symposium and workshop; 1982 August 31-September 2; Salt Lake City, UT. Gen. Tech. Rep. INT-149. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983: 115-119.

Clary, Warren P.; Holmgren, Ralph C. Desert Experimental Range: establishement and research contribution. Rangelands 4(6): 261-264; 1982.

Clawson, W. James; McDougald, Neil K.; Duncan, Don A. Guidelines for residue management on annual range. Leafl. 21327. Berkeley, CA: University of California, Cooperative Extension, Division of Agricultural Sciences; 1982. 3 p.

Davis, James N. Performance comparisons among populations of bitterbrush, cliffrose and bitterbrush-cliffrose crosses on study sites throughout Utah. In: Tiedemann, Arthur R.; Johnson, Kendall L., comp. Research and management of bitterbrush and cliffrose in western North America: Proceedings of the symposium; 1982 April 13-15; Salt Lake City, UT. Gen. Tech. Rep. INT-152. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983: 38-44.

Davis, Lee G.; Johnson, Mark K.; Pearson, Henry A. Sub clover for cattle on winter forests. La. Agric. 26(2): 18-19; 1983.

Davis, Lee G.; Johnson, Mark K.; Pearson, Henry A. Sub-clover on winter forest. Stockman 40(3): 8, 19, 27; 1983.

Eberlein, Gary P. Estimating growth of young mountain whitethorn shrubs. Res. Note PSW-357. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station; 1982. 3 p.

Edgerton, Paul J. Response of the bitterbrush understory of a central Oregon lodgepole pine forest to logging disturbance. In: Tiedemann, Arthur R.; Johnson, Kendall L., comp. Research and management of bitterbrush and cliffrose in western North America: Proceedings of the symposium; 1982 April 13-15; Salt Lake City, UT. Gen. Tech. Rep. INT-152. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983; 99-106.

Edgerton, Paul J.; Geist, J. Michael; Williams, Wayne G. Survival and growth of apache-plume, stansbury cliffrose and selected sources of antelope bitterbrush in northeast Oregon. In: Tiedemann, Arthur R.; Johnson, Kendall L., comp. Research and management of bitterbrush and cliffrose in western North America: Proceedings of the symposium; 1982 April 13-15; Salt Lake City, UT. Gen. Tech. Rep. INT-152. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983; 45-54.

Eissenstat, D. M.; Mitchell, J. E. Effects of seeding grass and clover on growth and water potential of Douglas-fir seedlings. For. Sci. 29(1): 166-179; 1983.

Eissenstat, D. M.; Mitchell, M. E.; Pope, W. W. Trampling damage by cattle on northern Idaho forest plantations. J. Range Manage. 35(6): 715-716; 1982.

Ferguson, Robert B.; Medin, Dean E. Long-term changes in an ungrazed bitterbrush plant community in southwest Idaho. In: Tiedemann, Arthur R.; Johnson, Kendall L., comp. Research and management of bitterbrush and cliffrose in western North America: Proceedings of the symposium; 1982 April 13-15; Salt Lake City, UT. Gen. Tech. Rep. INT-152. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983: 107-116.

Ffolliott, Peter F.; Clary, Warren P. Understory-overstory vegetation relationships: an annotated bibliography. Gen. Tech. Rep. INT-136. U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 39 p.

Frear, Samuel T. High country streams, cattle are compatible. Beef 19(9): 68-69; 1983.

Goodrich, Sherel; Lewis, Mont F. Noteworthy collections: Carex microglochin, C. parryana, Epilobium nevadense, and Kobresia simpliciuscula. Madrono 29(1): 57-61; 1982.

Goodrich, Sherel; Welsh, Stanley L. New variety of Stephanomeria tenuifolia (Compositae) from Utah. Great Basin Nat. 43(2): 375; 1983.

Goodrich, Sherel; Henderson, Douglass; Chokewa, Anita. Noteworthy collections--Idaho Astragalus gilviflorus and Hackelia davisii. Madrono 30(1): 63; 1983.

Grelen, Harold E. Comparison of seasons and frequencies of burning in a young slash pine plantation. Res. Pap. SO-185. New Orleans, LA: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station; 1983. 5 p.

Hironaka, M.; Fosberg, M. A.; Winward, A. H. Sagebrush-grass habitat types of southern Idaho. Bull. No. 35. Moscow, ID: University of Idaho, Forest, Wildlife and Range Experiment Station; 1983. 44 p.

Holechek, J. L.; Vavra, M.; Skovlin, J. Cattle diet and daily gains on a mountain riparian meadow in northeastern Oregon. J. Range Manage. 35(6): 745-747; 1982.

Holechek, J. L.; Vavra, M. Fistula sample numbers required to determine cattle diets on forest and grassland ranges. J. Range Manage. 36(3): 323-326; 1983.

Holechek, Jerry L.; Vavra, Martin. Forage intake by cattle on forest and grassland ranges. J. Range Manage. 35(6): 737-741; 1982.

Johnson, M. K.; Davis, L. G. Potentials for forest grazing in the southeastern United States. Int. Tree Crops J. 2(1982): 121-131; 1983.

Johnson, Mark K.; Pearson, Henry A.; Lewis, Clifford E. Agroforestry in the South. La. Cattleman 16(8): 7, 9; 1983.

Knipe, O. D. Angora goats for conversion of Arizona chaparral: early results. In: Conrad, C. Eugene; Oechel, Walter, C., tech. coords. Dynamics and management of Mediterranean-type ecosystems: Proceedings of the symposium; 1981 June 22-26; San Diego, CA. Gen. Tech. Rep. PSW-58, Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station; 1982: 264-269.

Koniak, Susan; Everett, Richard L. Seed reserves in soils of successional stages of pinyon woodlands. Am. Midl. Nat. 108(2): 295-303; 1982.

Larson, Jeanne R.; Duncan, Don A. Annual grassland response to fire retardant and wildfire. J. Range Manage. 35(6): 700-703; 1982.

MacCracken, James G.; Alexander, Lynn E.; Uresk, Daniel W. An important lichen of southeastern Montana rangelands. J. Range Manage. 36(1): 35-37; 1983.

McArthur, E. D.; Hassell, W. G.; Stevens, R.; [and others]. Naming and release of 'Rincon' fourwing saltbush (Atriplex canescens) for wildlife and livestock range and disturbed land reclamation. Salt Lake City, UT: U.S. Department of Agriculture, Soil Conservation Service; 1983. 2 p. Plant Release Notice.

McArthur, E. Durant. Taxonomy, origin, and distribution of big sagebrush (Artemisia tridentata) and allies (subgenus tridentatae). In: Johnson, K. L., ed. Proceedings, 1st Utah shrub ecology workshop; 1981 September 9-10; Logan, UT. Logan, UT: Utah State University; 1983: 3-13.

McArthur, E. Durant; Freeman, D. Carl. Sex expression in Atriplex canescens: genetics and environment. Bot. Gaz. 143(4): 476-482; 1982.

McArthur, E. Durant; Stevens, Richard; Blauer, A. Clyde. Growth performance comparisons among 18 accessions of fourwing saltbush (Atriplex canescens) at two sites in central Utah. J. Range Manage. 36(1): 78-81; 1983.

McArthur, E. Durant; Stutz, Howard C.; Sanders, Stewart C. Taxonomy, distribution, and cytogenetics of Purshia, Cowania, and Fallugia (Rosoideae, Rosaceae). In: Tiedemann, Arthur R.; Johnson, Kendall L., comp. Research and management of bitterbrush and cliffrose in western North America: Proceedings of the symposium; 1982 April 13-15; Salt Lake City, UT. Gen. Tech. Rep. INT-152. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983: 4-24.

McNab, W. Henry; Clark, Alexander, III; Thomas, Charles E. Status of biomass estimation of southern conifers in natural stands. In: Baldwin, V. C., Jr.; Lohrey, R. E., eds. Proceedings, 1982 Southern forest biomass working group workshop; 1982 June 16-18; Alexandria, LA. Baton Rouge, LA: Louisiana State University; 1982: 25-32.

Medina, Alvin L. Range research and resource management in southern Arizona. In: Patton, David R.; [and others], tech. coords. Proceedings, Wildlife and range research needs in northern Mexico and southwestern United States workshop; 1981 April 20-24; Rio Rico, AZ. Gen. Tech. Rep. WO-36. Washington, DC: U.S. Department of Agriculture, Forest Service; 1983: 104-108.

Mitchell, J. E. Analysis of forage production for assessments and appraisals. Gen. Tech. Rep. RM-98. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1983. 26 p.

Monsen, Steven B.; Shaw, Nancy L. Seeding antelope bitterbrush with grasses on south-central Idaho rangelands--a 39-year response. In: Tiedemann, Arthur R.; Johnson, Kendall L., comp. Research and management in bitterbrush and cliffrose in western North America: Proceedings of the symposium; 1982 April 13-15; Salt Lake City, UT. Gen. Tech. Rep. INT-152. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983: 126-136.

Mueggler, Walter F. Variation in production and seasonal development on mountain grasslands in western Montana. Res. Pap. INT-316. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 16 p.

Nelson, David L. Occurrence and nature of actinorhizae on Cowania stansburiana and other Rosaceae. In: Tiedemann, Arthur R.; Johnson, Kendall L., comp. Research and management of bitterbrush and cliffrose in western North America: Proceedings of the symposium; 1982 April 13-15; Salt Lake City, UT. Gen. Tech. Rep. INT-152. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983: 225-240.

Nelson, David L.; Tiernan, Charles F. Winter injury of sagebrush and other wildland shrubs in the western United States. Res. Pap. INT-314. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 17 p.

Pase, Charles P. Alpine tundra. In: Brown, David E., ed. Biotic communities of the American Southwest-United States and Mexico. Desert Plants 4(1-4): 27-33; 1982.

Pase, Charles P. Californian (coastal) chaparral. In: Brown, David E., ed. Biotic communities of the American Southwest-United States and Mexico. Desert Plants 4(1-4): 91-94; 1982.

Pase, Charles P. Sierran montane conifer forest. In: Brown, David E., ed. Biotic communities of the American Southwest-United States and Mexico. Desert Plants 4(1-4): 49-51; 1982.

Pase, Charles P. Sierran subalpine conifer forest. In: Brown, David E., ed. Biotic communities of the American Southwest-United States and Mexico. Desert Plants 4(1-4): 40-41; 1982.

Pase, Charles P.; Brown, David E. Californian coastalscrub. In: Brown, David E., ed. Biotic communities of the American Southwest-United States and Mexico. Desert Plants 4(1-4): 86-89; 1982.

Pase, Charles P.; Brown, David E. Interior chaparral. In: Brown, David E., ed. Biotic communities of the American Southwest-United States and Mexico. Desert Plants 4(1-4): 95-99; 1982.

Pase, Charles P.; Brown, David E. Rocky Mountain (Petran) and Madrean montane conifer forests. In: Brown, David E., ed. Biotic communities of the American Southwest-United States and Mexico. Desert Plants 4(1-4): 43-47; 1982.

Pase, Charles P.; Brown, David E. Rocky Mountain (Petran) subalpine conifer forest. In: Brown, David E., ed. Biotic communities of tne American Southwest- United States and Mexico. Desert Plants 4(1-4): 37-39; 1982.

Pearson, Henry A. Economic analysis of forest grazing. The Stockman 39(10): 26, 28, 30, 32; 1982.

Pearson, H. A.; Grelen, H. E.; Epps, E. A., Jr.; [and others]. Botanical composition and nutritive value of cattle diets on southern pine range. Res. Pap. SO-178. New Orleans, LA: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station; 1982. 24 p.

Pearson, Henry A. The southern evaluation project: a status report. In: Lohoefener, Ren; Lohmeier, Lynne; Johnston, Gail, eds. The future of gopher tortoise habitats: Proceedings, 2d annual meeting of the Gopher Tortoise Council; 1981 November 14; Jackson, MS. Jackson, MS: Mississippi Museum of Natural Sciences; 1981: 35-43.

Pederson, Jordan C.; Welch, Bruce L. Effects of monoterpenoid exposure on ability of rumen inocula to digest a set of forages. J. Range Manage. 35(4): 500-502; 1982.

Pendleton, Dennis F.; Menke, John W.; Williams, William A.; Woodmansee, Robert G. Annual grassland ecosystem model. Hilgardia 51(1): 1-44; 1983.

Platts, William S. Protection and enhancement of Pacific salmonids on ranges grazed by livestock: an overview. In: Hassler, Thomas J., ed. Proceedings, Propagation, enhancement, and rehabilitation of anadromous salmonid populations and habitat in the Pacific Northwest symposium; 1981 October 15-17; Arcata, CA. Arcata, CA: Humboldt State University, California Cooperative Fishery Research Unit; 1981: 62-65.

Quigley, Thomas M.; Taylor, R. G. Econometric estimation of range forage demand. In: Wagstaff, Fred J., comp. Proceedings, Range economics symposium and workshop; 1982 August 31-September 2; Salt Lake City, UT. Gen. Tech. Rep. INT-149. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983: 120-128.

Ratliff, R. D. Nebraska sedge (Carex nebraskensis Dewey): observations on shoot life history and management. J. Range Manage. 36(4): 429-430; 1983.

Ratliff, Raymond D. A correction of Cole's CO7? and Hurlbert's CO8? coefficients of interspecific association. Ecology 63(5): 1605-1606; 1982.

Ratliff, Raymond D. A meadow site classification for the Sierra Nevada, California. Gen. Tech. Rep. PSW-60. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station; 1982. 16 p.

Ratliff, Raymond D.; Pieper, Rex D. Approaches to plant community classification for the range manager. J. Range Manage. [Monogr. Ser. No. 1]; 1982. 10 p.

Scowcroft, Paul G.; Sakai, Howard F. Impact of feral herbivores on mamane forests of Mauna Kea, Hawaii: bark stripping and diameter class structure. J. Range Manage. 36(4): 495-498; 1983.

Severson, Kieth E. Production and nutritive value of aspen understory, Black Hills. J. Range Manage. 35(6): 786-789; 1982.

Severson, Kieth; Medina, Alvin L. The Santa Rita Range. In: Patton, David R.; [and others], tech. coords. Proceedings, Wildlife and range research needs in northern Mexico and southwestern United States workshop; 1981 April 20-24; Rio Rico, AZ. Gen. Tech. Rep. WO-36. Washington, DC: U.S. Department of Agriculture, Forest Service; 1983: 56-59.

Shaw, Nancy L.; Monsen, Stephen B. Phenology and growth habits of nine antelope bitterbrush, desert bitterbrush, Stansbury cliffrose, and apache plume accessions. In: Tiedemann, Arthur R.; Johnson, Kendall L., comp. Research and management of bitterbrush and cliffrose in western North America: Proceedings of the symposium; 1982 April 13-15; Salt Lake City, UT. Gen. Tech. Rep. INT-152. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983: 55-69.

Shifley, Stephen R.; Smith, W. Brad. Diameter growth, survival, and volume estimates for Missouri trees. Res. Note NC-292. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 7 p.

Skinner, B. R.; Probasco, G. E.; Samson, F. B. Environmental requirements of three threatened plants on limestone glades in southern Missouri. Biol. Conserv. 25(1): 63-73; 1983.

Smith, Mark A.; Baltensperger, Arden A. Agronomic and acetylene reduction evaluation of three annual medics. J. Range Manage. 36(1): 55-57; 1983.

Stevens, R.; Monsen, S. B.; Shaw, N.; [and others]. Naming and release of 'Ephraim' crested wheatgrass for commercial production and marketing of seed. Salt Lake City, UT: U.S. Department of Agriculture, Soil Conservation Service; 1983. 2 p. Plant Release Notice.

Stevens, R.; Monsen, S. B.; Shaw, N.; [and others]. Naming and release of 'Paiute' orgrass for commercial production and marketing of seeds. Salt Lake City, UT: U.S. Department of Agriculture, Soil Conservation Service; 1983. 2 p. Plant Release Notice.

Szaro, Robert C.; Pase, Charles P. Short-term changes in a cottonwood-ash-willow association on a grazed and an ungrazed portion of Little Ash Creek in central Arizona. J. Range Manage. 36(3): 382-384; 1983.

Tiedemann, Arthur R. Response of bitterbrush and associated plant species to broadcast nitrogen, phosphorus, and sulfur fertilization. In: Tiedemann, Arthur R.; Johnson, Kendall L., comp. Research and management of bitterbrush and cliffrose in western North America: Proceedings of the symposium; 1982 April 13-15; Salt Lake City, UT. Gen. Tech. Rep. INT-152. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983: 240-253.

Tiedemann, Arthur R.; Driver, Charles H. Snow eriogonum: a native halfshrub to revegetate winter game ranges. Reclam. and Reveg. Res. 2(1): 31-39; 1983.

Tiedemann, Arthur R.; Johnson, Kendall L., comp. Research and management of bitterbrush and cliffrose in western North America: Proceedings of the symposium. Gen. Tech. Rep. INT-152. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 279 p.

Uresk, Daniel W. Importance of woodlands to wildlife and livestock use on the northern High Plains. In: Proceedings, Great Plains Agricultural Council; 1982 June 7-9; North Platte, NE. Lincoln, NE: University of Nebraska Press; 1982: 7-12.

Vavra, Martin; Svejcar, Tony. Improved cattle production on forestlands. Research in beef cattle nutrition and management. Spec. Rep. 678. Corvallis, OR: Agricultural Experiment Station, Oregon State University; 19-29; 1983. In cooperation with: U.S. Department of Agriculture, Agricultrural Research Service.

Wagstaff, Fred J. Economics as a tool for natural rangeland managers. Rangelands 5(3): 121-122; 1983.

Wagstaff, Fred J. Evaluating proposed improvements of public rangelands. Gen. Tech. Rep. INT-150. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 4 p.

Wagstaff, Fred J. Externalities caused by multiple use on public rangelands. In: Wagstaff, Fred J., comp. Proceedings, Range economics symposium and workshop; 1982 August 31-September 2; Salt Lake City, UT. Gen. Tech. Rep. INT-149. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983: 82-85.

Wagstaff, Fred J., comp. Proceedings, Range economics symposium workshop; 1982 August 31-September 2; Salt Lake City, UT. Gen. Tech. Rep. INT-149. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 151 p.

Welch, Bruce L. Big sagebrush: nutrition, selection, and controversy. In: Johnson, K. L., ed. Proceedings, 1st Utah shrub ecology workshop; 1981; Logan, UT. Logan, UT: Utah State University; 1983: 21-33.

Welch, Bruce L.; Pederson, Jordan C.; Clary, Warren P. Ability of different rumen inocula to digest range forages. J. Wildl. Manage. 47(3): 873-877; 1983.

Welch, Bruce L.; Monsen, Stephen B.; Shaw, Nancy L. Nutritive value of antelope and desert bitterbrush, Stansbury cliffrose, and apache-plume. In: Tiedemann, Arthur R.; Johnson, Kendall L., comp. Research and management of bitterbrush and cliffrose in western North America: Proceedings of the symposium; 1982 April 13-15; Salt Lake City, UT. Gen. Tech. Rep. INT-152. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983: 173-185.

Welch, B. L.; Narjisse, H.; McArthur, E. D. Artemisia tridentata monoterpenoid effect on ruminant digestion and forage selection. In: Margaris, N.; Koedam, A.; Vokou, D., eds. Aromatic plants: basic and applied aspects. The Hague/Boston/London: Martinus Nijhoff Publishers; 1982: 73-86.

White, W. Elton; Lewis, Clifford E. Establishing circular plot boundaries with a wedge prism and an adjustable target pole. J. Range Manage. 35(5): 677-678; 1982.

Wolters, Gale L. Longleaf and slash pine decreases herbage production and alters herbage composition. J. Range Manage. 35(6): 761-763; 1982.

Zavitkovski, J.; Lundgren, Allen L.; Strong, Terry F. Biomass production of 4- to 9-year-old intensively cultured Larix eurolepis grown in "Scotch Plaid" plots in Wisconsin. Res. Pap. NC-231. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1983. 10 p.

Fisheries Habitat

Bryant, Mason D. Organic debris in salmonid habitat in southeast Alaska: measurement and effects. In: Armantrout, Neil B., ed. Acquisition and utilization of aquatic habitat inventory information: Proceedings of a symposium; 1981 October 28-30; Portland, OR. Bethesda, MD: Western Division, American Fisheries Society; [1982]: 259-265.

Dudley, Tom; Anderson, N. H. A survey of invertebrates associated with wood debris in aquatic habitats. Melanderia 39: 1-21; 1982. (Taken from: Tech. Pap. 6419. Corvallis, OR: Oregon Agricultural Experiment Station.)

Everest, Fred. Subsurface analysis. In: Platts, William S.; Megahan, Walter F.; Minshall, G. Wayne, eds. Methods for evaluating stream riparian, and biotic conditions. Gen. Tech. Rep. INT-138. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983: 17-21.

Everest, F. H.; Lotspeich, F. B.; Meehan, W. R. New perspectives on sampling, analysis, and interpretation of spawning gravel quality. In: Armantrout, Neil B., ed. Acquisition and utilization of aquatic habitat inventory information: Proceedings of a symposium; 1981 October 28-30; Portland, OR. Bethesda, MD: Western Division, American Fisheries Society; [1982]: 325-333.

Everest, Fred H.; Rodgers, Jeffrey. Two economical photoperiod controls for laboratory studies. Prog. Fish-Cult. 44(2): 113-114; 1982.

Everest, Fred H.; Talhelm, Daniel R. Evaluating projects for improving fish and wildlife habitat on National Forests. Gen. Tech. Rep. PNW-146. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1982. 12 p.

Hall, James D.; Baker, Calvin O. Rehabilitating and enhancing stream habitat: 1. Review and evaluation. Gen. Tech. Rep. PNW-138. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1982. 29 p. (In: Meehan, William R., tech. ed. Influence of forest and rangeland management on anadromous fish habitat in western North America; pt. 12.)

Johnson, James E.; Rinne, John N. The Endangered Species Act and southwest fishes. Fisheries 7(4): 2-8; 1982.

Krugman, S. L.; Ching, Kim K.; Dinus, Ronald J.; [and others]. Forest genetics and tree improvement in the People's Republic of China. Washington, DC: U.S. Department of Agriculture, Office of International Cooperation and Development and the Society of American Foresters; 1983. 84 p.

Lisle, Thomas E. Roughness elements: a key resource to improve anadromous fish habitat. In: Hassler, Thomas J., ed. Propagation, enhancement, and rehabilitation of anadromous salmonid populations and habitat in the Pacific Northwest: Proceedings of the symposium; 1981 October 15-17; Arcata, CA. Arcata, CA: Humboldt State University, California Cooperative Fishery Research Unit; [1983]; 93-98.

Lotspeich, Frederick B.; Platts, William E. An integrated land-aquatic classification. In: Armantrout, Neil B., ed. Acquisition and utilization of aquatic habitat inventory information: Proceedings of a symposium; 1981 October 28-30; Portland, OR. Portland, OR: Western Division, American Fisheries Society; [1982]: 103-108.

Meffee, Gary K.; Hendrickson, Dean A.; Minckley, W. L.; Rinne, John N. Factors resulting in decline of the endangered Sonoran topminnow Poeciliopsis occidentalis (Atheriniformes: Poeciliidae) in the United States. Biol. Conserv. 25: 135-159; 1983.

Minshall, G. Wayne; Petersen, Robert C.; Cummins, Kenneth W.; [and others]. Interbiome comparison of stream ecosystem dynamics. Ecol. Monogr. 53(1): 1-25; 1983.

Neves, Richard J.; Pardue, Garland B. Abundance and production of fishes in a small Appalachian stream. Trans. Am. Fish. Soc. 112: 21-26; 1983.

Platts, William S. Impairment, protection and rehabilitation of Pacific salmonid habitats on sheep and cattle ranges. In: Hassler, Thomas J., ed. Propagation, enhancement, and rehabilitation of anadromous salmonid populations and habitat in the Pacific Northwest: Proceedings of the symposium; 1981 October 15-17; Arcata, CA. Arcata, CA: Humboldt State University, California Cooperative Fishery Research Unit; 1981: 82-92.

Platts, William S. Stream inventory garbage in--reliable analysis out: only in fairy tales. In: Armantrout, Neil B., ed. Acquisition and utilization of aquatic habitat inventory information: Proceedings of a symposium; 1981 October 28-30; Portland, OR. Portland, OR: Western Division, American Fisheries Society; [1982]: 75-84.

Platts, William S. Those vital streambanks. Idaho Wildl. 3(9): 6-10; 1983.

Platts, William S.; Megahan, Walter F.; Minshall, Wayne G. Methods for evaluating stream, riparian, and biotic conditions. Gen. Tech. Rep. INT-138. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 70 p.

Platts, William S.; Partridge, Fred E. Inventory of salmon, steelhead trout, and bull trout: South Fork Salmon River, Idaho. Res. Note INT-324. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 8 p.

Reeves, Gordon H.; Everest, Fred H.; McLemore, Carl E. A recirculating stream aquarium for ecological studies. Res. Note PNW-403. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1983. 8 p.

Reeves, Gordon H.; Roelofs, Terry D. Rehabilitating and enhancing stream habitat: 2. Field applications. Gen. Tech. Rep. PNW-140. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1982. 38 p. (In: Meehan, William R., tech. ed. Influence of forest and rangeland management on anadromous fish habitat in western North America; pt. 13.)

Rinne, John N. Problems associated with habitat evaluation of an endangered fish in headwater environments. In: Armantrout, Neil B., ed. Acquisition and utilization of aquatic habitat inventory information: Proceedings of a symposium; 1981 October 28-30; Portland, OR. Bethesda, MD: Western Division, American Fisheries Society; [1982]: 202-209.

Rumble, Mark A. Classifying aquatic resources: a quantitative approach. In: Proceedings, 3d plains aquatic research conference; 1983 August 24-25; Bozeman, MT. Bozeman, MT: Montana State University, Institute of Natural Resources; 1983: 89-99.

Sedell, J. R.; Bisson, P. A.; June, J. A.; Speaker, R. W. Ecology and habitat requirements of fish populations in South Fork Hoh River, Olympic National Park. In: Starkey, Edward E.; Franklin, Jerry F.; Matthews, Jean W., tech. coords. Ecological research in National Parks of the Pacific Northwest: Proceedings, 2d conference on scientific research in the National Parks; 1979 November; San Francisco, CA. Corvallis, OR: Oregon State University, Forest Research Laboratory; 1982: 34-42.

Sedell, James R.; Everest, Fred H.; Swanson, Frederick J. Fish habitat and streamside management: past and present. In: Black, Hugh C., ed. Effects of forest practices on fish and wildlife production: Proceedings of a joint technical session; 1981 September 29; Orlando, FL. [Bethesda, MD]: Society of American Foresters; [1981]: 41-52.

Sedell, James R.; Luchessa, Karen J. Using the historical record as an aid to salmonid habitat enhancement. In: Armantrout, Neil B., ed. Acquisition and utilization of aquatic habitat inventory information: Proceedings of a symposium; 1981 October 28-30; Portland, OR. Bethesda, MD: Western Division, American Fisheries Society; [1982]: 210-223.

Vineyard, Richard N. An annotated checklist of the caddisflies (Trichoptera) of SE Alaska. J. Entomol. Soc. Brit. Columbia 79: 71-75; Dec. 1982.

Ward, G. Milton; Cummins, Kenneth W.; Speaker, Robert W.; [and others]. Habitat and food resources for invertebrate communities in South Fork Hoh River, Olympic National Park, Washington. In: Starkey, Edward E.; Franklin, Jerry F.; Matthews, Jean W., tech. coords. Ecological research in National Parks of the Pacific Northwest: Proceedings, 2d conference on scientific research in the National Parks; 1979 November; San Francisco, CA. Corvallis, OR: Oregon State University, Forest Research Laboratory; 1982: 9-14.

Forest Recreation

Airola, T.; Wilson, D. Recreational benefits of residual open space: a case study of four communities in northeastern New Jersey. Environ. Manage. 6(6): 471-484; 1982.

Allen, Deborah J.; Driver, B. L.; Shikiar, Richard. Management preferences of recreationists in a scenic corridor; Oak Creek Canyon, Arizona. In: Lime, David W., tech. coord. Forest & river recreation: research update. Misc. Publ. 18. St. Paul, MN: University of Minnesota Agricultural Experiment Station; 1982: 38-41.

Allton, David J.; Lieber, Stanley R. Attributes of Chicago trail areas. Leisure Sci. 5(3): 197-220; 1983.

Anderson, Dorothy H.; Manfredo, Michael J.; Witter, Daniel J. Social research in fish and wildlife management. In: Lime, David W., tech. coord. Forest & river recreation: research update. Misc. Publ. 18. St. Paul, MN: University of Minnesota Agricultural Experiment Station; 1982: 55-57.

Anderson, L. M.; Mulligan, B. E.; Goodman, L. S. Esthetics of sound in outdoor settings. In: Southeastern recreation researchers conference: 1980-1981 proceedings; 1980 February 18-19 and 1981 February 19-20; Asheville, NC. Athens, GA: University of Georgia, Institute of Ecology; 1982: 109-122.

Becker, Robert H.; Iliff, Terry J. Nonrespondents in homogeneous groups: implications for mailed surveys. Leisure Sci. 5(3): 257-267; 1983.

Bonnicksen, Thomas M.; Becker, Robert H. Environmental impact studies: an interdisciplinary approach to assigning priorities. Environ. Manage. 7(2): 109-117; 1983.

Brown, Perry J.; Ross, David M. Using desired recreation experiences to predict setting preferences. In: Lime, David W., tech. coord. Forest & river recreation: research update. Misc. Publ. 18. St. Paul, MN: University of Minnesota Agricultural Experiment Station; 1982: 105-110.

Cherem, Gabriel J.; Driver, B. L. Visitor employed photography: a technique to measure common perceptions of natural environments. J. Leisure Res. 15(1): 65-83; 1983.

Christensen, Harriet H.; Clark, Roger N. Increasing public involvement to reduce depreciative behavior in recreation settings. Leisure Sci. 5(4): 359-379; 1983.

Clark, Roger N.; Johnson, Darryll R.; Field, Donald R. The Alaska public survey--a comprehensive assessment of recreational values and use patterns and natural resource management. In: Lime, David W., tech. coord. Forest & river recreation: research update. Misc. Publ. 18. St. Paul, MN: University of Minnesota Agricultural Experiment Station; 1982: 115-119.

Cole, David N. Assessing and monitoring backcountry trail conditions. Res. Pap. INT-303. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 10 p.

Cole, David N. Campsite conditions in the Bob Marshall Wilderness, Montana. Res. Pap. INT-312. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 18 p.

Cole, David N. Controlling the spread of campsites at popular wilderness destinations. J. Soil and Water Conserv. 37(5): 291-295; 1982.

Cole, David N. Monitoring the conditions of wilderness campsites. Res. Pap. INT-302. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 10 p.

Cole, David N.; Dalle-Molle, John. Managing campfire impacts in the backcountry. Gen. Tech. Rep. INT-135. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 16 p.

Cole, David N.; Fichtler, Richard K. Campsite impact on three western wilderness areas. Environ. Manage. 7(3): 275-288; 1983.

Cordell, H. Ken; Hartmann, Lawrence A. Renewable resources recreation in the United States: supply, demand, and critical policy issues. In: America's hardwood forests--opportunities unlimited: Proceedings, 1982 convention of the Society of American Foresters; 1982 September 19-22; Cincinnati, OH. SAF 83-04. Bethesda, MD: Society of American Foresters; 1983: 281-285.

Cordell, H. Ken; Hendee, John C. Renewable resources recreation in the United States: supply, demand, and critical policy issues. Washington, DC: American Forestry Association; 1982. 88 p.

Cordell, H. Ken; Hendee, John C.; Stevens, J. Herbert, Jr. Renewable recreation resources in the United States: the resource situation and critical policy issues. In: Lieber, S. R.; Fesenmaier, D. R., eds. Recreation planning and management. State College, PA: Venture Publ.; 1983: 241-278.

Cordell, H. Ken; Senter, H. F.; Ragatz, R. L. Potential conflicts between private recreational property development and forest land management in the South. In: Southeastern recreation researchers conference: 1980-1981 proceedings; 1980 February 18-19 and 1981 February 19-20; Asheville, NC. Athens, GA: University of Georgia, Institute of Ecology; 1982: 123-141.

Cordell, H. Ken; Stanley-Saunders, Barbara. The private sector role in rural outdoor recreation in the United States: an annotated bibliography. Chicago: CPL Bibliographies; 1983. 118 p.

Darragh, Alexander J.; Peterson, George L.; Dwyer, John F. Travel cost models at the urban scale. J. Leisure Res. 15(2): 89-94; 1983.

Devine, Hugh A.; Hendricks, Stephen. A new procedure for identifying the outdoor recreation potential of forest resources in North Carolina: an application. In: A healthy economy in a healthy environment: Proceedings, North Carolina Environmental Studies Council; 1983 May 11-12; Chapel Hill, NC. Chapel Hill, NC: University of North Carolina at Chapel Hill; 1983: 127-138.

Driver, B. L.; Brown, Perry J. Contribution of behavioral scientists to recreation resource management. Chapter 9. In: Altman, Irwin; Wohlwill, Joachim F., eds. Human behavior and environment: advances in theory and research; Vol. 6, Behavior and the natural environment; 1983: 307-339.

Echelberger, Herbert E.; Gilroy, Donna; Moeller, George H. 1961-1982 Recreation research publications. Washington, DC: U.S. Department of Agriculture, Forest Service; 1983. 94 p.

Echelberger, Herbert E.; Leonard, Raymond E.; Adler, Steven P. Designated-dispersed tentsites. J. For. 81(2): 90-91, 105; 1983.

Erickson, David L.; Liu, Calvin J. Traffic recorders in dispersed recreation use estimation. In: Southeastern recreation researchers conference: 1980-1981 proceedings; 1980 February 18-19 and 1981 February 19-20; Asheville, NC. Athens, GA: University of Georgia, Institute of Ecology; 1982: 77-84.

Greenleaf, Robert D.; Echelberger, Herbert E. Backpacker satisfaction in the White Mountains. Appalachia. Dec.: 112-113; 1982.

Hammitt, William E.; McDonald, Cary D. Past on-site experience and its relationship to managing river recreation resources. For. Sci. 29(2): 262-266; 1983.

Hammitt, William E.; McDonald, Cary D. Social group participation and its importance as a variable in examining management control preferences of stream floaters. In: Southeastern recreation researchers conference: 1980-1981 proceedings; 1980 February 18-19 and 1981 February 19-20; Asheville, NC. Athens, GA: University of Georgia, Institute of Ecology; 1982: 45-48.

Hammitt, William E.; McDonald, Cary D.; Cordell, H. K. Characteristics and use behavior of innertube floaters on southern Appalachian streams. J. Soil and Water Conserv. 38(2): 113-115; 1982.

Harris, Charles C. Recreation satisfaction: visitor evaluation of forest recreation experiences as a decisionmaking process. In: Lime, David W., tech. coord. Forest & river recreation: research update. Misc. Publ. 18. St. Paul, MN: University of Minnesota Agricultural Experiment Station; 1982: 160-163.

Hof, John G.; Kaiser, H. Fred. Long-term outdoor recreation participation projections for public land management agencies. J. Leisure Res. 15(1): 1-14; 1983.

Hof, John G.; Kaiser, H. Fred. Projections of future recreation use. Res. Bull. WO-2. Washington, DC: U.S. Department of Agriculture, Forest Service; 1983. 9 p.

Johnson, Lynn A.; Driver, B. L. An approach to measuring the perceived benefits to volunteers in natural resource agencies. In: Proceedings, Volunteers in the backcountry; 1982 May 21-22; Pinkham Notch, NH. Durham, NH: University of New Hampshire; 1983: 80-88.

Jungst, Steven E.; Countryman, David W. Two regression models for projecting future wilderness use. Iowa State J. Res. 57(1): 33-41; 1982.

Ketchledge, E. H.; Leonard, R. E. Ecological stability of Adirondack Mountain summit vegetation. Adirondack 46(10): 22-23; 1982.

Kingsley, Neal P. Private forests and recreation. In: Proceedings, New England section 63rd annual winter meeting: The future of forests in New England and Eastern Canada; 1983 March 9-11; Burlington, VT. SAF 83-05. Burlington, VT: New England section of the Society of American Forestser; 1983: 79-81.

Knopf, Richard C. Expanding our conception of "environment." In: Proceedings, 1982 symposium on leisure research; 1982 October 24-26; Louisville, KY. Alexandria, VA: National Recreation and Park Association; 1982: 51-53.

Knopf, Richard C.; Peterson, George L.; Leatherberry, Earl C. Motives for recreational river floating: relative consistency across settings. Leisure Sci. 5(3): 231-255; 1983.

Knopp, Timothy B.; Leatherberry, Earl C. Choosing and allocating outdoor recreation opportunities: the decision process. In: Lime, David W., tech. coord. Forest & river recreation: research update. Misc. Publ. 18. St. Paul, MN: University of Minnesota Agricultural Experiment Station; 1982: 89-93.

LaPage, Wilbur F. Five harmful marketing myths. Woodall's Campground Manage. 14(1): 10; 1982.

LaPage, Wilbur F. Planning and research: forging a partnership for recreation's future. In: Lieber, Stanley R.; Fesenmaier, Daniel R., eds. Recreation planning and management. State College, PA: Venture Publ.; 1983: 376-381.

LaPage, Wilbur F. Recreation resource management for visitor satisfaction. In: Lieber, Stanley B.; Fesenmaier, Daniel R., eds. Recreation planning and management. State College, PA: Venture Publ.; 1983: 279-285.

Leonard, R. E.; McBride, J. M.; Conkling, P. W.; McMahon, J. L. Ground cover changes resulting from low-level camping stress on a remote site. Res. Pap. NE-530. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1983. 4 p.

Lime, David W., tech. coord. Forest & river recreation: research update. Misc. Publ. 18. St. Paul, MN: University of Minnesota Agricultural Experiment Station; 1982: 163 p.

Lucas, Robert C. Low and variable visitor compliance rates at voluntary trail registers. Res. Note INT-326. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 5 p.

Lucas, Robert C. The role of regulations in recreation management. West. Wildlands 9(2): 6-10; 1983.

Manfredo, Michael J.; Anderson, Dorothy H. Recreation preferences of Oregon trout fishermen. In: Lime, David W., tech. coord. Forest & river recreation: research update. Misc. Publ. 18. St. Paul, MN: University of Minnesota Agricultural Experiment Station; 1982: 64-68.

McBride, J. C.; Leonard, R. E. A system for measuring ground cover changes. Parks 7(3): 20; 1982.

McDonald, Cary D.; Hammitt, William E. Safety and risk behavior of inner tube floaters on southern Appalachian streams. In: Southeastern recreation researchers conference: 1980-1981 proceedings; 1980 February 18-19 and 1981 February 19-20; Asheville, NC. Athens, GA: University of Georgia, Institute of Ecology; 1982: 27-41.

Merrill, Amanda A., ed. Proceedings, Volunteers in the backcountry--a conference; 1982 May 26-28; Durham, NH. Durham, NH: University of New Hampshire; 1982. 219 p.

Mills, Allan S.; Bonn, Mark A.; Couturier, Hermel. Benefits sought by Lake Tahoe area downhill skiers. Calif. Parks and Recreation 38(5): 7, 8, 26, 27; 1982.

Moeller, George H.; Shafer, E. L. The use and misuse of Delphi forecasting. In: Lieber, Stanley R.; Fesenmaier, Daniel R., eds. Recreation planning and management. State College, PA: Venture Publ.; 1983: 90-104.

More, Thomas A.; Stevens, Thomas H.; Allen, P. Geoffrey. Economic valuation of urban open space resources. In: America's hardwood forests--opportunities unlimited: Proceedings, 1982 convention of the Society of American Foresters; 1982 September 19-22; Cincinnati, OH. SAF 83-04. Bethesda, MD: Society of American Foresters; 1983: 336-339.

Mulligan, B. E.; Goodman, L. S.; Faupel, M.; [and others]. Interactive effects of outdoor noise and visible aspects of vegetation on behavior. In: Southeastern recreation researchers conference: 1980-1981 proceedings; 1980 February 18-19 and 1981 February 19-20; Asheville, NC. Athens, GA: University of Georgia, Institute of Ecology; 1982: 265-279.

Noe, Francis P.; McDonald, Cary D.; Hammitt, William E. Comparison of perceived risk taking in groups and implications drawn from the risky-shift paradigm. Percept. and Mot. Skills 56(1): 199-206; 1983.

Peterson, George L. Rationing and redistribution of recreational use of scarce resources with limited carrying capacity. In: Lieber, Stanley R.; Fesenmaier, Daniel R., eds. Recreation planning and management. State College, PA: Venture Publ.; 1983: 286-302.

Powell, Lou G. Access to recreation in New Hampshire parks: a status report. Durham, NH: University of New Hampshire; 1982. 135 p.

Propst, Dennis B.; Lime, David W. How satisfying is satisfaction research? A look at where we are going. In: Lime, David W., tech. coord. Forest & river recreation: research update. Misc. Publ. 18. St. Paul, MN: University of Minnesota Agricultural Experiment Station; 1982: 124-133.

Roggenbuck, Joseph W.; Schomaker, John H. Research needs for improved recreation visitor management. In: Lime, David W., tech. coord. Forest & river recreation: research update. Misc. Publ. 18. St. Paul, MN: University of Minnesota Agricultural Experiment Station; 1982: 1-6.

Roggenbuck, Joseph W.; Watson, Alan E.; Stankey, George H. Wilderness management in the southern Appalachians. South. J. Appl. For. 6(3): 147-152; 1982.

Rosenthal, Donald H.; Driver, B. L. Managers' perceptions of experiences sought by ski-tourers. J. For. 81(2): 88-90, 105. 1983.

Rosenthal, Donald H.; Waldman, David A.; Driver, B. L. Construct validity of instruments measuring recreationists' preferences. J. Leisure Sci. 5(2): 89-108; 1982.

Samdahl, Diane M.; Christensen, Harriet H.; Clark, Roger N. Prevention and control of depreciative behavior in recreation areas: managerial concerns and research needs. In: Lime, David W., tech. coord. Forest & river recreation: research update. Misc. Publ. 18. St. Paul, MN: University of Minnesota Agricultural Experiment Station; 1982: 52-54.

Saunders, Paul Richard. Characteristics of nondeveloped forest recreation from multi-resource inventory plots in South Carolina. In: Southeastern recreation researchers conference: 1980-1981 proceedings; 1980 February 18-19 and 1981 February 19-20; Asheville, NC. Athens, GA: University of Georgia, Institute of Ecology; 1982: 13-26.

Schomaker, John H. Views of western whitewater floaters toward possible safety measures. Water Resour. Bull. 19(3): 463-467; 1983.

Schomaker, John H.; Leatherberry, Earl C. A test for inequity in river recreation reservation systems. J. Soil and Water Conserv. 38(1): 52-56; 1983.

Schreyer, Richard. Experience level affects expectations for recreation participation. In: Lime, David W., tech. coord. Forest & river recreation: research update. Misc. Publ. 18. St. Paul, MN: University of Minnesota Agricultural Experiment Station; 1982: 154-159.

Schroeder, Herbert W.; Brown, Thomas C. Alternative functional forms for an inventory-based landscape perception model. J. Leisure Res. 15(2): 156-163; 1983.

Schroeder, Herbert; Daniel, Terry C. Progress in predicting the perceived scenic beauty of forest landscapes. For. Sci. 27(1): 71-80; 1981.

Shelby, Bo; Colvin, Rick. Encounter measures in carrying capacity research: actual, reported, and diary contacts. J. Leisure Res. 14(4): 350-360; 1982.

Stankey, George H. Carrying capacity, impact management and ROS. Australian Parks & Recreation. May: 24-30; 1982.

Stankey, George H; Wood, J. The recreation opportunity spectrum: an introduction. Australian Parks & Recreation. February: 6-14; 1982.

Stynes, Daniel J. The role of information in recreation site selection. In: Lime, David W., tech. coord. Forest & river recreation: research update. Misc. Publ. 18. St. Paul, MN: University of Minnesota Agricultural Experiment Station; 1982: 100-104.

Tarbet, Don; Cordell H. Ken; Schreuder, Hans T. An evaluation of the double sampling techniques for estimation of recreation use. In: Southeastern recreation researchers conference: 1980-1981 proceedings; 1980 February 18-19 and 1981 February 19-20; Ashville, NC. Athens, GA: University of Georgia, Institute of Ecology; 1982: 85-96.

Temple, Kenneth L.; Camper, Anne K.; Lucas, Robert C. Potential health hazard from human wastes in wilderness. J. Soil and Water Conserv. 37(6): 357-359; 1982.

Townsend, Carol T.; Tarbet, Don D. Attitudes of Chattooga River users. In: Southeastern recreation researchers conference: 1980-1981 proceedings; 1980 February 18-19 and 1981 February 19-20; Asheville, NC. Athens, GA: University of Georgia, Institute of Ecology; 1982: 207-226.

Vining, Joanne; Daniel, Terry C.; Schroeder, Herbert W.; Morganster, Donna. Mountain pine beetle impacts on scenic values in forest residential sites. In: Parks, Bradley O.; Fear, Frank A.; Lambur, Michael T.; Simmons, Gary A., eds. Proceedings, Urban and suburban trees: pest problems, needs, prospects, and solutions; 1982 April 18-20; East Lansing, MI. East Lansing, MI: Michigan State University; 1982: 144-148.

Vogelmann, H. W.; Leonard, R. E. Effects of fertilizer on alpine vegetation in the Green Mountains of Vermont. Recreation Res. Manage. Bull. 2(2): 21-22; 1982.

Washburne, Randel F. Wilderness recreational carrying capacity: are numbers necessary? J. For. 80(11): 726-728; 1982.

Washburne, Randel F.; Cole, David N. Problems and practices in wilderness management: a survey of managers. Res. Pap. INT-304. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 56 p.

Watson, Alan E.; Roggenbuck, Joseph W.; Muth, Robert M. Diffusion of a campsite inventory system. J. For. 83(5): 308-311; 1983.

Wellman, J. Douglas; Roggenbuck, Joseph W.; Smith, Alan C. Recreation specialization and norms of depreciative behavior among canoeists. J. Leisure Res. 14(4): 323-340; 1982.

Wormwood, Sue; Powell, Lou G. Access to recreation. A guide for handicapped visitors to New Hampshire state parks and areas in the White Mountain National Forest. Concord, NH: Granite State Independent Living Foundation; 1982: 91 p.

Urban Forestry and Community Forestry

Anderson, L. M.; Clark, A. L.; Marx, D. H. Growth of oak seedlings with specific ectomycorrhizae in urban stress environments. J. Arboric. 9(6): 156-159; 1983.

Barker, Philip A. Planning space for trees in street rights-of-way. Lobel, Denice F., ed. Proceedings, 2d California symposium on urban forestry; 1982 January 21-22; Pomona, CA. Berkeley, CA: Univiversity of California Cooperative Extension (Forestry); 1983: 20-22.

Berrang, P. C.; Steiner, K. C. Pin oak chlorosis control promising via seed source. Sci. in Agric. 29(3): 8; 1982.

Cannon, William N., Jr.; DeBald, Paul S.; Worley, David P. Survival of elms--a guide to dutch elm disease control performance. In: Parks, Bradley, O.; Fear, Frank A.; Lambur, Michael T.; Simmons, Gary A., eds. Proceedings, Urban and suburban trees: pest problems, needs, prospects, and solutions; 1982 April 18-20; East Lansing, MI. East Lansing, MI: Michigan State University; 1982: 36-41.

Coughlin, Robert E.; Strong, Ann L. Forests, fields and urban development. Res. Pap. Ser. 2. Philadelphia, PA: University of Pennsylvania, Department of City and Regional Planning; 1983. 110 p.

DeWalle, David R.; Heisler, Gordon M.; Jacobs, Robert E. Forest home sites influence heating and cooling energy. J. For. 81(2): 84-87; 1983.

Dwyer, John F. Challenges in managing urban forest recreation resources. In: Gangloff, Deborah J.; Moeller, George H., eds. Proceedings, 2d National urban forestry conference; 1982 October 10-14; Cincinnati, OH. Washington, DC: American Forestry Association; 1983: 152-156.

Dwyer, John F. Urban tree and forest pest management: an economic perspective. In: Parks, Bradley O.; Fear, Frank A.; Lambur, Michael T.; Simmons, Gary A., eds. Proceedings, Urban and suburban trees: pest problems, needs, prospects, and solutions; 1982 April 18-20; East Lansing, MI. East Lansing, MI: Michigan State University; 1982: 139-143.

Dwyer, John F.; Peterson, George L.; Darragh, Alexander J. Estimating the value of urban forests using the travel cost method. J. Arboric. 9(7): 182-185; 1983.

Gangloff, Deborah J.; Moeller, George H., eds. Proceedings, 2d National urban forestry conference; 1982 October 10-14; Cincinnati, OH. Washington, DC: American Forestry Association; 1983: 385 p.

Getz, Dale A.; Karow, Alexander; Kielbaso, J. James. Inner city preferences for trees and urban forestry programs. J. Arboric. 8(10): 258-263; 1982.

Goldstein, Edward L.; Gross, Meir; DeGraaf, Richard M. Wildlife and greenspace planning in medium-scale residential developments. Urban Ecol. 7(1982/1983): 201-214; 1983.

Hagerty, John K.; Stevens, T. H.; Allen, P. G.; More, T. Benefits from urban open space and recreational parks: a case study. J. Northeast. Agric. Econ. Counc. 6(1): 13-20; 1982.

Harrje, David T.; Buckley, Charles E.; Heisler, Gordon M. Building energy reductions: windbreak optimization. J. Energy Div., Proc. Am. Soc. Civ. Eng. 108: 143-154; 1982.

Hayward, D. Geoffrey; Weitzer, William H. Understanding urban park users: a key to effective planning and management. Parks and Recreation Resour. 2(2): 24-27; 1983.

Heisler, Gordon M.; Schutzki, Robert E.; Zisa, Robert P.; [and others]. Effect of planting procedures on initial growth of Acer rubrum L. and Fraxinus pennsylvanicum L. in a parking lot. Res. Pap. NE-513. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1982. 6 p.

Kaplan, Rachel. Managing greenspace in multiple-family neighborhoods. In: America's hardwood forests--opportunities unlimited: Proceedings, 1982 convention of the Society of American Foresters; 1982 September 19-22; Cincinnati, OH. SAF 83-04. Bethesda, MD: Society of American Foresters; 1983: 322-326.

Kielbaso, J. James. Preferences of Detroit residents for urban forests and forestry programs. In: America's hardwood forests--opportunities unlimited: Proceedings, 1982 convention of the Society of American Foresters; 1982 September 19-22; Cincinnati, OH. SAF 83-04. Bethesda, MD: Society of American Foresters; 1983: 349-352.

Lambur, Michael T.; Fear, Frank A.; Parks, Bradley O.; Simmons, Gary A. Urban and suburban trees: pest problems, needs, prospects, and solutions description of a problem analysis. In: America's hardwood forests--opportunities unlimited: Proceedings, 1982 convention of the Society of American Foresters; 1982 September 19-22; Cincinnati, OH. SAF 83-04. Bethesda, MD: Society of American Foresters; 1983: 327-332.

Lambur, Michael T.; Parks, Bradley O.; Fear, Frank A.; Simmons, Gary A. Taking public attitudes and practices into account: pest management in a Michigan suburban community. In: Parks, Bradley O.; Fear, Frank A.; Lambur, Michael T.; Simmons, Gary A., eds. Proceedings, Urban and suburban trees: pest problems, needs, prospects, and solutions; 1982 April 18-20; East Lansing, MI. East Lansing, MI: Michigan State University; 1982: 180-188.

O'Leary, Joseph T. Managing urban river corridors: implications for urban forestry. In: America's hardwood forests--opportunities unlimited: Proceedings, 1982 convention of the Society of American Foresters; 1982 September 19-22; Cincinnati, OH. SAF 83-04. Bethesda, MD: Society of American Foresters; 1983: 316-321.

O'Leary, Joseph T.; Adams, Mary Beth; Parker, Lance W. Importance-performance analysis: an aid to problem identification in urban river recreation development. In: Allee, David J.; Dworsky, Leonard B.; North, Ronald M., eds. Proceedings, Unified river basin management--stage II; 1981 October 4-8; Atlanta, GA. Minneapolis, MN: American Water Resources Association; 1981: 200-213.

Owe, Manfred; Craul, Philip J.; Halverson, Howard G. Contaminant levels in precipitation and urban surface runoff. Water Resour. Bull. 18(5): 863-868; 1982.

Parks, Bradley O.; Fear, Frank A.; Lambur, Michael T.; Simmons, Gary A., eds. Proceedings, Urban and suburban trees: pest problems, needs, prospects, and solutions; 1982 April 18-20; East Lansing, MI. East Lansing, MI: Michigan State University; 1982. 253 p.

Ross, A. D.; Stevens, T. M.; Allen, P. G. Measurement of recreation benefits for urban-oriented camping. Res. Bull. 667. Amherst, MA: Massachusettes Agricultural Experiment Station; 1981. 66 p.

Rowntree, Rowan A.; Sanders, Ralph A.; Stevens, Jack C. Evaluating urban forest structure for modifying microclimate: the daytime climate project. In: Gangloff, Deborah J.; Moeller, George H., eds. Proceedings, 2d National urban forestry conference; 1982 October 10-14; Cincinnati, OH. Washington, DC: American Forestry Association; 1983: 136-142.

Ruark, G. A.; Mader, D. L.; Tattar, T. A. The influence of soil compaction and aeration on the root growth and vigour of trees--a literature review: Part I. Arboric. J. 6: 251-265; 1982.

Ruark, G. A.; Mader, D. L.; Tattar, Terry A. A composite sampling technique to assess urban soils under roadside trees. J. Arboric. 8(4): 96-99; 1982.

Ruark, G. A.; Mader, D. L.; Veneman, P. L. M.; Tattar, T.A. Soil factors related to urban sugar maple decline. J. Arboric. 9(1): 1-6; 1983.

Sanders, Ralph A.; Rowntree, Rowan A. Classification of American metropolitan areas by ecoregion and potential natural vegetation. Res. Pap. NE-516. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1983. 15 p.

Schabel, Hans G. Urban forestry: some lessons from Germany. In: America's hardwood forests--opportunities unlimited: Proceedings, 1982 convention of the Society of American Foresters; 1982 September 19-22; Cincinnati, OH. SAF 83-04. Bethesda, MD: Society of American Foresters; 1983: 340-345.

Schroeder, Herbert W. Preferred features of urban parks and forests. J. Arboric. 8(12): 317-322; 1982.

Schroeder, Herbert W. Variations in the perception of urban forest recreation sites. Leisure Sci. 5(3): 221-230; 1983.

Schroeder, Herbert W.; Cannon, William N., Jr. The esthetic contribution of trees to residential streets in Ohio towns. J. Arboric. 9(9): 237-243; 1983.

Schroeder, Herbert W.; Cannon, William N., Jr. The contribution of trees to residential landscapes in Ohio. In: America's hardwood forests--opportunities unlimited: Proceedings, 1982 convention of the Society of American Foresters; 1982 September 19-22; Cincinnati, OH. SAF 83-04. Bethesda, MD: Society of American Foresters; 1983: 333-335.

Tikkala, Willard R. Directory of urban and community forestry professionals in the U.S. and Canada. Washington, DC: American Forestry Association; 1983: 144 p.

Wagar, J. Alan. Combining the disposal and utilization of urban wood: a look at feasibility. In: Lobel, Denice F., ed. Proceedings, 2d California symposium on urban forestry; 1982 January 21-22; Pomona, CA. Berkeley, CA: University of California Cooperative Extension (Forestry); 1983: 121-128.

Wagar, J. Alan. Sidewalk and soil amendment effects on growth of zelkova and fruitless mulberry. J. Arboric. 8(10): 267-270; 1982.

Wagar, J. Alan; Barker, Philip A. Tree root damage to sidewalks and curbs. J. Arboric. 9(7): 177-181; 1983.

West, Patrick C. Organizational stigma in metropolitan park and recreation agencies. Therapeutic Recreation J. 16(4): 35-41; 1982.

Young, Robert A.; Flowers, Mary Lou. Users of an urban natural area: their characteristics, use patterns, satisfactions, and recommendations. For. Res. Rep. 82-4. Urbana, IL: University of Illinois, Agricultural Experiment Station; 1982. 5 p.

Disturbed Areas Rehabilitation

Aldon, Earl F. Use of organic amendments for biomass production on reclaimed strip mines in the Southwest. In: Sopper, William E.; Seaker, Eileen M.; Bastian, Robert K., eds. Utilization and municipal wastewater and sludge for land reclamation and biomass production: Proceedings, 1980 symposium and engineering assessment; 1980 September 16-18; Pittsburgh, PA. University Park, PA: Pennsylvania State University Press; 1982: 317-320.

Aldon, Earl F. Vegetation stability on mine spoils in the Southwest. In: Aldon, Earl F.; Oaks, Wendall R., eds. Reclamation of mined lands in the Southwest: Proceedings of the symposium; 1982 October 20-22; Albuquerque, NM. Albuquerque, NM: New Mexico Chapter of the Soil Conservation Society of America; 1983: 198-200.

Aldon, Earl F.; Oaks, Wendall R., eds. Reclamation of mined lands in the Southwest: Proceedings of the symposium; 1982 October 20-22; Albuquerque, NM. Albuquerque, NM: New Mexico Chapter of the Soil Conservation Society of America; 1983: 218 p.

Barnett, James P. Containerized plants regenerate reclamation sites. Coal Mining and Process. 20(7): 26; 1983.

Berry, Charles R. Dried sewage sludge improves growth of pines in the Tennessee Copper Basin. Reclam. and Revegetation Res. 1(2): 195-201; 1982.

Berry, Charles R. Sewage sludge aids reclamation of disturbed forest land in the Southeast. In: Sopper, William E.; Seaker, Eileen M.; Bastian, Robert K., eds. Utilization and municipal wastewater and sludge for land reclamation and biomass production: Proceedings, 1980 symposium and engineering assessment; 1980 September 16-18; Pittsburgh, PA. University Park, PA: Pennsylvania State University Press; 1982: 307-316.

Bjugstad, Ardell J.; Rumble, Mark A.; Olson, Richard A.; Barker, William T. Prairie pond morphometry and aquatic plant zonation - northern High Plains. In: Proceedings, 3d biennial plains aquatic research conference; 1983 August 24-25; Bozeman, MT. Bozeman, MT: Montana State University, Institute of Natural Resources; 1983: 101-111.

Brock, John G. Interseeding and interplanting techniques for Southwest reclamation. In: Aldon, Earl F.; Oaks, Wendall R., eds. Reclamation of mined lands in the Southwest: Proceedings of the symposium; 1982 October 20-22; Albuquerque, NM. Albuquerque, NM: New Mexico Chapter of the Soil Conservation Society of America; 1983: 192-195.

Corey, J. C.; Hollod, G. J.; Stone, D. M.; [and others]. Environmental effects of utilization of sewage for biomass production. In: Sopper, William E.; Seaker, Eileen M.; Bastian, Robert K., eds. Utilization and municipal wastewater and sludge for land reclamation and biomass production: Proceedings, 1980 symposium and engineering assessment; 1980 September 16-18; Pittsburgh, PA. University Park, PA: Pennsylvania State University Press; 1982: 265-272.

Cress, William A. The effect of varied watering regimes on proline production in Atriplex canescens, Hilaria jamesii, and Agropyron smithii. In: Aldon, Earl F.; Oaks, Wendall R., eds. Reclamation of mined lands in the Southwest: Proceedings of the symposium; 1982 October 20-22; Albuquerque, NM. Albuquerque, NM: New Mexico Chapter of the Soil Conservation Society of America; 1983: 165-169.

Davidson, Walter H.; Sowa, Edward A. Conifers growing on anthracite minesoils respond to fertilization. In: Graves, Donald H.; DeVore, R. W., eds. Surface mining, hydrology, sedimentology, and reclamation: Proceedings of the symposium; 1982 December 6-10; Lexington, KY. Univ. of Kentucky Bull. 129. Lexington, KY: University of Kentucky, Office of Engineering Services; 1982: 115-118.

Denison, Steve A.; Messner, Harold E. Control of line expansion in drip irrigation systems. Res. Note RM-427. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1983. 2 p.

Dyer, Kenneth L. Stream water quality in the coal region of Alabama and Georgia. Gen. Tech. Rep. NE-73. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1982. 109 p.

Dyer, Kenneth L. Stream water quality in the coal region of Ohio. Gen. Tech. Rep. NE-75. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1982. 138 p.

Dyer, Kenneth L. Stream water quality in the coal region of Pennsylvania. Gen. Tech. Rep. NE-76. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1982. 125 p.

Dyer, Kenneth L. Stream water quality in the coal region of Tennessee. Gen. Tech. Rep. NE-77. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1982. 125 p.

Dyer, Kenneth L. Stream water quality in the coal region of Virginia. Gen. Tech. Rep. NE-78. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1982. 68 p.

Fresquez, P. R.; Lindemann, W. C.; Lindsey, D. C. Soil biota in Southwestern coal strip-mined spoils. In: Aldon, Earl F.; Oaks, Wendall R., eds. Reclamation of mined lands in the Southwest: Proceedings of the symposium; 1982 October 20-22; Albuquerque, NM. Albuquerque, NM: New Mexico Chapter of the Soil Conservation Society of America; 1983: 24-34.

Fresquez, Phillip R.; Lindemann, W. C.; Lindsey, D. C. Nitrification potential of amended coal mine spoils. New Mex. J. Sci. 22(2): 36-42; 1983.

Fulton, Gary W.; Barker, William T.; Bjugstad, Ardell J. Rooted aquatic plant revegetation of strip mine impoundments in the northern Great Plains. In: Proceedings, 3d biennial plains aquatic research conference; 1983 August 24-25; Bozeman, MT. Bozeman, MT: Montana State University, Institute of Natural Resources; 1983: 113-117.

Jasmer, Gerald E.; Donart, Gary B.; Aldon, Earl F. Responses of reestablished vegetation to simulated grazing. In: Aldon, Earl F.; Oaks, Wendall R., eds. Reclamation of mined lands in the Southwest: Proceedings of the symposium; 1982 October 20-22; Albuquerque, NM. Albuquerque, NM: New Mexico Chapter of the Soil Conservation Society of America; 1983: 188-191.

Larson, M. M.; Vimmerstedt, J. P. Evaluation of 30-year-old plantations on strip-mined land in east central Ohio. Res. Bull. 1149. Wooster, OH: Ohio Agricultural Research and Development Center; 1983. 10 p.

Louderbough, Ellen; Potter, Loren D. Mancos shale: some physical and chemical properties which effect vegetative communities on shale outcrops. In: Graves, Donald H.; DeVore, R. W., eds. Surface mining, hydrology, sedimentology, and reclamation: Proceedings of the symposium; 1982 December 6-10; Lexington, KY. Univ. of Kentucky Bull. 129. Lexington, KY: University of Kentucky, Office of Engineering Services; 1982: 547-550.

McMinn, James W.; Berry, Charles R.; Horton, J. H. Ash basin reclamation with commercial forest species. Reclam. and Revegetation Res. 1(4): 359-365; 1982.

Monsen, Stephen B.; Shaw, Nancy. Benefits of seeding legumes with grasses on western phosphate mine disturbances. In: Robertson, David J., ed. Reclamation and the phosphate industry: Proceedings of the symposium; 1983 January 26-28; Clearwater Beach, FL. Publ. 03-036-010. Bartow, FL: Florida Institute of Phosphate Research; 1983: 464-478.

Noble, Daniel L.; Howe, Sr. Marmion. Cyanide in riparian vegetation. In: Fuerstenau, Maurice C.; Palmer, Bruce R., eds. Gold, silver, uranium, and coal; geology, mining, extraction and the environment. New York: The American Institute of Mining, Metallurgical and Pertoleum Enginners, Inc.; 1983: 498-505.

Phillips, W. F.; Bell, D. A. Diffusion of radon gas from uranium mill tailings. J. Energy Resour. Tech. 104: 130-133; June 1982.

Richardson, Bland Z.; Farmer, Eugene E. Revegetation of phosphate mined lands in the Intermountain West. In: Robertson, David J., ed. Reclamation and the phosphate industry: Proceedings of the symposium; 1983 January 26-28; Clearwater Beach, FL. Publ. 03-036-010. Bartow, FL: Florida Institute of Phosphate Research; 1983: 373-389.

Roth, Paul L.; Weaver, George T.; Morin, Michael. Restoration of a woody ecosystem on a sludge-amended devastated mine-site. In: Sopper, William E.; Seaker, Eileen M.; Bastian, Robert K., eds. Utilization and municipal wastewater and sludge for land reclamation and biomass production: Proceedings, 1980 symposium and engineering assessment; 1980 September 16-18; Pittsburgh, PA. University Park, PA: The Pennsylvania State University Press; 1982: 368-385.

Rothwell, F. M.; Hacskaylo, E.; Fisher, D. Ecto- and endomycorrhizal fungus associations with Quercus imbricaria L. Plant and Soil 71: 209-312; 1983.

Rumble, Mark A. Classifying aquatic resources: a quantitative approach. In: Proceedings, 3d biennial plains aquatic research conference; 1983 August 24-25; Bozeman, MT. Bozeman, MT: Montana State University, Institute of Natural Resources; 1983: 89-98.

Scholl, David G. Properties of coal spoils of the Navajo mine. In: Aldon, Earl F.; Oaks, Wendall R., eds. Reclamation of mined lands in the Southwest: Proceedings of a symposium; 1982 October 20-22; Albuquerque, NM. Albuquerque, NM: New Mexico Chapter of the Soil Conservation Society of America; 1983: 35-42.

Sieg, Carolyn Hull; Uresk, Daniel W.; Hansen, Richard M. Plant-soil relationships in bentonite mine spoils and sagebrush-grassland in the northern High Plains. J. Range Manage. 36(3): 289-294; 1983.

Stevens, Richard. Selecting species mixtures for optimum wildlife habitat development on disturbed lands. In: Proceedings, 3d annual reclamation symposium; 1983 January 10-11; Salt Lake City, UT. Salt Lake City, UT: Soil Conservation Service, Native Plants, Inc.; 1983: 41-55.

Stutz, Howard C. Broad gene pools required for disturbed lands. In: Aldon, Earl F.; Oaks, Wendall R., eds. Reclamation of mined lands in the Southwest: Proceedings of a symposium; 1982 October 20-22; Albuquerque, NM. Albuquerque, NM: New Mexico Chapter of the Soil Science Society of America; 1983: 113-118.

Tiedemann, A. R.; Lopez, C. F. Soil nutrient assessements of mine spoils. In: Aldon, Earl F.; Oaks, Wendall R., eds. Reclamation of mined lands in the Southwest: Proceedings of a symposium; 1982 October 20-22; Albuquerque, NM. Albuquerque, NM: New Mexico Chapter of the Soil Conservation Society of America; 1983: 66-79.

U.S. Department of Agriculture, Forest Service. Wildlife user guide for mining and reclamation. Gen. Tech. Rep. INT-126. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1982. 77 p.

Willis, Raymond B.; Mullins, Gregory L. Automated analysis for water alkalinity. Anal. Chem. 55(7): 1173-1175; 1983.

Yamamoto, Teruo. A review of uranium spoil and mill tailings revegetation in the western United States. Gen. Tech. Rep. RM-92. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1982. 20 p.

Insects and Disease

Insect Detection and Evaluation

Beckwith, R. C.; Mason, R. R.; Paul, H. G. How to determine the number of Douglas-fir tussock moth eggs from egg mass weight. Agric. Handb. 599. Washington, DC: U.S. Department of Agriculture; 1982. 6 p. In cooperation with: Douglas-fir Tussock Moth Program.

Karpinski, C., Jr.; Witter, J. A. Plot size and number of plots needed to assess spruce budworm impact. Can. J. For. Res. 12(2): 332-336; 1982.

Lih, M. P.; Stephen, F. M. Use of computer simulation models to predict expected tree mortality and monetary loss from SPB spots--a research update. For. Bull. R8-FB/P1. Southern Pine Beetle Fact Sheet No. 26. Atlanta, GA: U.S. Department of Agriculture, Forest Service, Southern Region; 1983. 1 p.

Mason, Richard R.; Torgersen, T. R. How to predict population trends. Agric. Handb. 610. Washington, DC: U.S. Department of Agriculture, Combined Forest Pest Research and Development Program; 1983. 6 p.

McCarthy, J.; Olson, C. E.; Witter, J. A. Evaluation of spruce-fir forests using small-format photographs. Photogrammetric Engineering and Remote Sensing 48(5): 771-778; 1982.

ODell, Thomas M. Monitoring and assessment of gypsy moth populations: a requirement for effective pest management decisions. Conn. Timber Trends 4(2): 5-7, 8; 1983.

Olson, C. E.; Sacks, P. J.; Witter, J. A.; Bergelin, L. A. Spruce budworm damage assessment with 35 mm air photos. Rep. UMSNR/RSL 82-1a. Ann Arbor, MI: University of Michigan, Remote Sensing Laboratory; 1982. 43 p.

Reed, David D.; Hedden, Roy L.; Daniels, Richard F. Estimating the annual probability of southern pine beetle outbreak. For. Sci. 28(2): 202-206; 1982.

Sharpnack, Nancy X.; Wong, John. Sampling designs and allocations yielding minimum cost estimators for mountain pine beetle loss assessment surveys. Rep. 83-3. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Forest Pest Management Methods Application Group; 1982. 11 p.

Solomon, J. D. Annotations of selected insect borers of living hardwood trees and other woody plants from "Cooperative Plant Pest Reports". Inf. Bull. 32. Mississippi State, MS: Mississippi Agricultural and Forestry Experiment Station; 1982. 39 p.

Thomas, H. A.; Ghent, J. H.; Stone, C. G. Use of pheromone traps as a new technique in a large-scale survey of the introduced pine sawfly (Hymenoptera: Diprionidae). Bull. Entomol. Soc. Am. 28(3): 303-304; 1982.

Wood, Robert E.; Wargo, Philip M. Biological evaluation. Rate of decline of Rio Grande cottonwoods subjected to flood plain degradation and other environmental stresses. For. Pest Manage. Rep. R-3 83-4. Albuquerque, NM: U.S. Department of Agriculture, Southwestern Region, State and Private Forestry, Forest Pest Management; 1982. 6 p.

Younan, E. G.; Hain, F. P. Evaluation of five trap designs for sampling insects associated with severed pines. Can. Entomol. 114: 789-796; 1982.

Insect Biology

Anderson, N. H.; Cooper, G. M.; Denning, D. G. Invertebrates of the H. J. Andrews Experimental Forest, western Cascades, Oregon II. An annotated checklist of caddisflies (Trichoptera). Res. Note PNW-402. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1982. 16 p.

Albert, P. J. Host plant preferences in larvae of the eastern spruce budworm, Choristoneura fumiferana. In: Proceedings, 5th International symposium on insect-plant relationships; 1982 March 1-4; Wageningen, The Netherlands. Wageningen, The Netherlands: Pudoc; 1982: 19-24.

Amman, Gene D. Characteristics of mountain pine beetles reared in four pine hosts. Environ. Entomol. 11(3): 590-593; 1982.

Amman, Gene D.; Cole, Walter E. Mountain pine beetle dynamics in lodgepole pine forests. Part II: population dynamics. Gen. Tech. Rep. INT-145. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 59 p.

Andryszak, N. A.; Payne, T. L.; Billings, P.M.; Benenati, J. M. Effect of flight activity on laboratory response of the southern pine beetle to an attractant. J. Ga. Entomol. Soc. 17(4): 456-460; 1982.

Beckwith, Roy C. Effects of constant laboratory temperatures on the Douglas-fir tussock moth (Lepidoptera: Lymantriidae). Environ. Entomol. 11(6): 1159-1163; 1982.

Beckwith, Roy C. The effect of temperature and food deprivation on survival of first-instar Douglas-fir tussock moths (Orgyia pseudotsugata) (Lepidoptera: Lymantriidae). Can. Entomol. 115: 663-666; 1983.

Beckwith, Roy C.; Burnell, Donald G. Spring larval dispersal of the western spruce budworm (Lepidoptera: Tortricidae) in north-central Washington. Environ. Entomol. 11(4): 828-832; 1982.

Blair, Larry M. Black walnut curculio: a factor in walnut nut production. In: Proceedings, Black walnut for the future; 1981 August 9-14; West Lafayette, IN. Gen. Tech. Rep. NC-74. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982: 43-46.

Boyne, John V.; Hain, Fred P. Effects of constant temperature, relative humidity, and simulated rainfall on development and survival of the spruce spider mite (Oligonychus ununguis). Can. Entomol. 115: 93-105; 1983.

Bridges, J. R. Mycangial fungi of Dendroctonus frontalis (Coleoptera: Scolytidae) and their relationship to beetle population trends. Environ. Entomol. 12(3): 858-861; 1983.

Bridges, J. Robert; Moser, John C. Role of two phoretic mites in transmission of bluestain fungus, Ceratocystis minor. Ecol. Entomol. 8: 9-12; 1983.

Byers, John A. Bark beetle conversion of a plant compound to a sex-specific inhibitor of pheromone attraction. Science 220: 624-626; 1983.

Campbell, Robert W.; Torgersen, Torolf. Effect of branch height on predation of western spruce budworm (Lepidoptera: Tortricidae) pupae by birds and ants. Environ. Entomol. 12(3): 697-699; 1983.

Campbell, Robert W.; Torgersen, Torolf R. Compensatory mortality in defoliator population dynamics. Environ. Entomol. 12(3): 630-632; 1983.

Campbell, Robert W.; Torgersen, Torolf R.; Srivastava, Nilima. Effect of tree height on density and survival rate of the western spruce budworm (Lepidoptera: Tortricidae): instar IV to adults. Environ. Entomol. 12(3): 804-806; 1983.

Chrisman, Allen B.; Blake, George M.; Shearer, Raymond C. The effect of western spruce budworm on Douglas-fir cone production in western Montana. Res. Pap. INT-308. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 7 p.

Cook, Stephen P.; Wagner, Terence L.; Flamm, Richard O.; [and others]. Examination of sex habits and mating habits of Ips avulsus and I. calligraphus (Coleoptra:Scolytidae). Ann. Entomol. Soc. Am. 76(1): 56-60; 1983.

Crawford, H. S.; Titterington, R. W.; Jennings, D. T. Bird predation and spruce budworm populations. J. For. 81(7): 433-435, 478; 1983.

Dix, M. E.; Franklin, R. T. Behavior of four braconid parasites and one pteromalid parasite of the southern pine beetle. J. Ga. Entomol. Soc. 18(1): 125-138; 1983.

Drooz, A. T.; Weems, M. L. Cooling eggs of Eutrapela clemataria (Lepidoptera: Geometridae) to -10° forestalls decline in parasite production with Ooencyrtus ennomophagus (Hymenoptera: Encyrtidae). Can. Entomol. 114: 1195-1196; 1982.

Ebel, Bernard H.; Summerville, K. O. An evaluation of feeding by a seedbug, Leptoglossus oppositus (Say), on seed yield of sweet gum, Liquidambar styraciflua L. J. Ga. Entomol. 18(3): 316-320; 1983.

Fargo, W. S.; Wagner, T. L.; Coulson, R. N.; [and others]. Probability functions for components of the Dendroctonus frontalis - host tree population system and their potential use with population models. Res. Pop. Ecol. 24: 123-131; 1982.

Florence, L. Zack; Johnson, Paul C.; Coster, Jack C. Behavioral and genetic diversity during dispersal: analysis of a polymorphic esterase locus in the southern pine beetle, Dendroctonus frontalis. Environ. Entomol. 11(5): 1014-1018; 1982.

Furniss, Malcolm M. Entomology of antelope bitterbrush. In: Tiedemann, Arthur R.; Johnson, Kendall L., comp. Proceedings, Research and management of bitterbrush and cliffrose in western North America: Proceedings of the symposium; 1982 April 13-15; Salt Lake City, UT. Gen. Tech. Rep. INT-152. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983: 164-172.

Gagne, J. A.; Wagner, T. L.; Sharpe, P. J. H.; [and others]. Reemergence of Dendroctonus frontalis (Coleoptera: Scolytidae) at constant temperatures. Environ. Entomol. 11(6): 1216-1222; 1982.

Gagne, Raymond J.; Stein, John D. Diadiplosis koebelei Koebele (Diptera: Cecidomyiidae), a rediscovered predator of scale insects. Mem. Entomol. Soc. Wash. 10(1982): 65-69; 1982.

Galford, Jimmy R. Life history of the red oak borer, Enaphalodes rifulus (Haldeman) in white oak (Coleoptera: Cerambycidae). Entomol. News 94(1): 7-10; 1983.

Godwin, Paul A.; Valentine, Harry T.; ODell, Thomas M. Identification of Pissodes strobi, P. approximatus and P. nemorensis (Coleoptera: Curculionidae) using discriminant analysis. Ann. Entomol. Soc. Am. 75(6): 599-604; 1982.

Godwin, Paul A.; Valentine, Harry T.; ODell, Thomas M. Identifying pine bark weevils by discriminant analysis. BioScience 33(3): 198; 1983.

Grant, G. G.; Slessor, K. N.; Szittner, R. B.; [and others]. Development of a bioluminescense assay for aldehyde pheromones of insects. II Analysis of pheromone glands. J. Chem. Ecol. 8(6): 923-933; 1982.

Greenblatt, Jane A.; Barbosa, Pedro; Montgomery, Michael E. Host's diet effects on nitrogen utilization efficiency for two parasitoid species: Brachymeria intermedia and Coccygomimus turionellae. Physiol. Entomol. 7: 263-267; 1982.

Hall, Richard W. Attraction of Dendroctonus valens (Coleoptera: Scolytidae) to ponderosa pines baited with Dendroctonus brevicomis (Coleoptera: Scolytidae) pheromone. Environ. Entomol. 12(3): 718-719; 1983.

Hall, Richard W.; Johnson, Norman F. Recovery of Tetrastichus gallerucae (Hymenoptera: Eulophidae), an introduced egg parasitoid of the elm leaf beetle (Pyrrhalta luteola) (Coleoptera: Chrysomelidae). J. Kansas Entomol. Soc. 56(3): 297-298; 1983.

Houseweart, Mark W.; Southard, Susan G.; Jennings, Daniel T. Availability and acceptability of spruce budworm eggs to parasitism by the egg parasitoid, Trichogramma minutum (Hymenoptera: Trichogrammatidae). Can. Entomol. 114(8): 657-666; 1982.

Jennings, Daniel T.; Crawford, Hewlette S. Pine siskin preys on egg masses of the spruce budworm, Choristoneura fumiferana (Lepidoptera: Tortricidae). Can. Entomol. 115: 439-440; 1983.

Jennings, Daniel T.; Hacker, Susanne C.; Knight, Fred B.; McKnight, Melvin E. Spruce budworms bibliography. Misc. Rep. 268. Orono, ME: Maine Agricultural Experiment Station; 1982; Suppl. 2: 75 p.

Jennings, Daniel T.; Houseweart, Mark W. Sticky-board trap for measuring dispersal of spruce budworm larvae. Res. Pap. NE-526. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1983. 7 p.

Jennings, Daniel T.; Houseweart, Mark W. Parasitism of spruce budworm (Lepidoptera: Tortricidae) eggs by Trichogramma minutum and absence of overwintering parasitoids. Environ. Entomol. 12(2): 535-540; 1983.

Knop, Nancy F.; Hoy, Marjorie A.; Montgomery, Michael E. Altered hatch sequence of males and females from unchilled eggs of a "non-diapause" gypsy moth strain (Lepidoptera: Lymantriidae). NY Entomol. Soc. 90(2): 82-86; 1982.

Kulhavy, David L.; Johnson, P. C. Southern pine beetle: Annotated bibliography, 1868-1982. Nacogdoches, TX: Stephen F. Austin State University, School of Forestry, Center for Applied Studies; 1983. 95 p.

Lawson, H. Randy; Yost, Larry A.; Jennings, Daniel T. Southwestern pine tip moth: notes on larval descent behavior, predators, and associated shoot borer in northern Arizona. Southw. Nat. 28: 95-97; 1983.

Lindquist, O. H. Keys to lepidopterous larvae associated with the spruce budworm in northeastern North America. Sault Ste. Marie, ON: Canadian Forestry Service, Great Lakes Forest Research Centre; 1982. 18 p.

Linit, M. J.; Kondo, E.; Smith, M. T. Insects associated with the pinewood nematode, Bursaphelenchus xylophilus (Nematoda: Aphelenchoididae), in Missouri. Environ. Entomol. 12(2): 467-470; 1983.

Linit, M. J.; Stephen, F. M. Observations on trees resisting southern pine beetle attack. J. Ga. Entomol. Soc. 17(3): 350-356; 1982.

Linit, M. J.; Stephen, F. M. Parasite and predator component of within-tree southern pine beetle (Coleoptera: Scolytidae) mortality. Can. Entomol. 115: 679-688; 1983.

Lynch, A. M.; Witter, J. A. Spruce budworm impact in 1981 on 25 spruce-fir stands in the Bessemer, Watersmeet, Ontonagon and Bergland Districts of the Ottawa National Forest. Tech. Rep. 83-4. Ann Arbor, MI: Michigan Cooperative Forest Pest Management Program; 1983. 49 p.

Lynch, A. M.; Witter, J. A. Spruce budworm impact in 1981 on 17 spruce-fir stands in the Sault Ste. Marie and St. Ignace Districts of the Hiawatha National Forest. Tech. Rep. 83-5. Ann Arbor, MI: Michigan Cooperative Forest Pest Management Program; 1983. 33 p.

Lynch, A. M.; Witter, J. A. Spruce budworm impact in 1981 on 18 spruce-fir stands in the Iron River and Kenton Districts of the Ottawa National Forest. Tech. Rep. 83-3. Ann Arbor, MI: Michigan Cooperative Forest Pest Management Program; 1983. 33 p.

Lynch, A. M.; Witter, J. A. Spruce budworm impact in 1981 on 21 spruce-fir stands in the munising, Rapid River and Manistique Districts of the Hiawatha National Forest. Tech. Rep. 83-6. Ann Arbor, MI: Michigan Cooperative Forest Pest Management Program; 1983. 41 p.

Mahunka, Sandor; Moser, John C. New data to the knowledge of the tarsonemids (Acari) living on bark beetles. Parasit. Hung. 14: 87-89; 1982.

Mason, Richard R.; Overton, W. Scott. Predicting size and change in nonoutbreak populations of the Douglas-fir tussock moth (Lepidoptera: Lymantriidae). Environ. Entomol. 12(3): 799-803; 1983.

Mason, Richard R.; Torgersen, Torolf R.; Wickman, Boyd E.; Paul, H. Gene. Natural regulation of a Douglas-fir tussock moth (Lepidoptera: Lymantriidae) population in the Sierra Nevada. Environ. Entomol. 12(2): 587-594; 1983.

Mattson, W. J.; Koller, C. N.; Slocum, S. S. Adult female spruce budworm, Choristoneura fumiferana (Lepidoptera: Tortricidae), dry weight in relationship to pupal fresh weight and case diameter. Great Lakes Entomol. 15(3): 185-187; 1982.

McCambridge, William F.; Hawskworth, Frank G.; Edminster, Carleton B.; Laut, John G. Ponderosa pine mortality resulting from a mountain pine beetle outbreak. Res. Pap. RM-235. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1982. 7 p.

McDaniel, Ivan N.; Jennings, Daniel T. Loxosceles reclusa (Araneae: Loxoscelidae) found in Maine, USA. J. Med. Entomol. 20(3): 316-317; 1983.

McManus, Michael L.; Mason, Conrad J. Determination of the settling velocity and its significance to larval dispersal of the gyspy moth (Lepidoptera: Lymantriidae). Environ. Entomol. 12(1): 270-272; 1983.

McPherson, J. E.; Weber, B. C.; Henry, T. J. Seasonal flight patterns of Hemiptera in a North Carolina black walnut plantation. 7. Miridae. Great Lakes Entomol. 16(2): 35-42; 1983.

Meighen, E. A.; Slessor, K. N.; Grant, G. G. Development of a bioluminescense assay for aldehyde pheromones of insects. I. Sensitivity and specificity. J. Chem. Ecol. 8(6): 911-921; 1982.

Meyer, Wendy L.; DeBarr, Gary L.; Berisford, C. Wayne; [and others]. Identification of the sex pheromone of the webbing coneworm moth, Dioryctria disclusa (Lepidoptera: Pyralidae). Environ. Entomol. 11: 986-988; 1982.

Michaels, Patrick J. Weather and the southern pine beetle in Atlantic Coastal and Piedmont Regions. In: Proceedings, 16th conference on agricultural and forest meteorology; 1983 April 16-18; Fort Collins, CO. Boston, MA: American Meterological Society; 1983: 241-244.

Montgomery, Michael E.; Wargo, Philip M. Ethanol and other host-derived volatiles as attractants to beetles that bore into hardwoods. J. Chem. Ecol. 9(2): 181-190; 1983.

Namkoong, G.; Richmond, J.; Roberds, J. H.; [and others]. Population genetic structure of Nantucket pine tip moth. Theor. and Appl. Genet. 63: 1-7; 1982.

Nelson, Earl E. The future of forest disease research in the Forest Service. In: Jacobi, William R., comp. Proceedings, 30th annual western international forest disease work conference; 1982 September 12-16; Fallen Leaf Lake, CA. Fort Collins, CO: Colorado State University; 1982: 45-48.

Nyrop, J. P.; Simmons, G. A. Measurement and analysis of the activity of adult spruce budworm parasitoids. Tech. Rep. 82-12. East Lansing, MI: Michigan Cooperative Forest Pest Management Program; 1982. 77 p.

ODell, Thomas M.; Shields, Kathleen S.; Mastro, Victor C.; Kring, Timothy J. The epiphysis of the gypsy moth, Lymantria dispar (Lepidoptera: Lymantriidae): Structure and function. Can. Entomol. 114(8): 751-761; 1982.

Reeves, R. Marcel; Dunn, Gary A.; Jennings, Daniel T. Carabid beetles (Coleoptera: Carabidae) associated with the spruce budworm, Choristoneura fumiferana (Lepidoptera: Tortricidae). Can. Entomol. 115: 453-472; 1983.

Rexrode, Charles O. Bionomics of the peach bark beetle Phloeotribus liminaris (Coleoptera: Scolytidae) in black cherry. J. Ga. Entomol. Soc. 17(3): 388-398; 1982.

Richmond, J. A.; Thomas, H. A.; Bhattacharyya, H. Predicting spring flight of the Nantucket pine tip moth by heat unit accumulation. J. Econ. Entomol. 76(2): 269-271; 1983.

Rohrmann, G. F.; Martignoni, M. E.; Beaudreau, G. S. DNA sequence homology between Autographa californica and Orgyia pseudotsugata nuclear polyhedrosis viruses. J. Gen. Virol. 62: 137-143; 1982.

Rohrmann, G. F.; Melgaard, S.; Beaudreau, G. S.; Martignoni, M. E. Characterization of DNA from three nuclear polyhedrosis viruses pathogenic for Choristoneura sp. J. Invertebr. Pathol. 40: 237-241; 1982.

Schmid, J. M.; Bennett, D.; Young, R. W.; [and others]. Sampling larval populations of the pandora moth. Res. Note RM-421. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1982. 5 p.

Schmid, J. M.; Farrar, P. A. Distribution of western spruce budworm egg masses on white fir and Douglas-fir. Res. Pap. RM-241. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1982. 7 p.

Schmitt, Jeffrey J.; Goyer, Richard A. Consumption rates and predatory habits of Scoloposelis mississippensis and Lyctocoris elongatus (Hemiptera: Anthocoridae) on pine bark beetles. Environ. Entomol. 12(2): 363-367; 1983.

Schowalter, T. D.; Coulson, R. N.; Turnbow, R. H.; Fargo, W. S. Accuracy and precision of procedures for estimating populations of the southern pine beetle (Coleoptera: Scolytidae) using host tree correlates. J. Econ. Entomol. 75(6): 1009-1016; 1982.

Seastedt, T. R.; Crossley, D. A., Jr.; Meentemeyer, V.; Waide, J. B. A two-year study of leaf litter decomposition as related to macroclimatic factors and microarthropod abundance in the southern Appalachians. Holarctic Ecol. 6: 11-16; 1983.

Sharma, G. D.; Drooz, A. T.; Treat, A. E. A new species of Callidosma (Acari: Prostigmata: Erythraeidae) parasite on adults of Anacamptodes vellivolata (Lepidoptera: Geometridae) as a larva, and predator of eggs of Lepidoptera as deutonymph and adult. Ann. Entomol. Soc. Am. 76(1): 120-129; 1983.

Shields, K. S.; Godwin, P. A. U.S. Forest Service gypsy moth parasite research. In: Proceedings, 1982 National Gypsy Moth Review; 1982 December 7-9; Harrisburg, PA. Middletown, PA: Pennsylvania Department of Environmental Resources; 1983: 136-138.

Simmons, G. A.; Fowler, G. W. How to apply bias adjustment to spruce budworm egg mass counts. Inf. Rep. 82-11. East Lansing, MI: Michigan Cooperative Forest Pest Management Program; 1982. 11 p.

Simmons, G. A.; Fowler, G. W. Spruce budworm egg mass density on balsam fir and white spruce: low population levels (Lepidoptera: Tortricidae). Great Lakes Entomol. 15(4): 287-296; 1982.

Smith, Richard H. Xylem monoterpenes of ponderosa pines: a resistance factor against western pine beetle, and a genetic hypothesis. In: Breeding insect and disease resistant forest trees: Proceedings, Servicewide genetics workshop; 1982 July 19-23; Eugene, OR. Washington, DC: U.S. Department of Agriculture, Forest Service, Timber Management Staff; 1982: 53-70.

Solomon, Dale S. Spruce budworm impact on the spruce-fir forest of Maine: an integration of spatial information systems. In: Brann, Thomas B.; House, Louis O., IV; Land, H. Gyde, eds. Proceedings, National workshop on in-place resource inventories: principles and practices; 1981 August 9-14; Orono, ME. SAF 82-02. Washington, DC: Society of American Foresters; 1982: 1046-1050.

Solomon, J. D. Culturing the lilac borer, Podosesia syringae (Harris), a serious pest of green ash. J. Ga. Entomol. Soc. 18(3): 300-303; 1983.

Solomon, J. D. Lilac borer (Podosesia syringae) discovered causing terminal mortality and resulting forks in young green ash trees. J. Ga. Entomol. Soc. 18(3): 320-323; 1983.

Southard, Susan G.; Houseweart, Mark W.; Jennings, Daniel T.; Halteman, William A. Size differences of laboratory reared and wild populations of Trichogramma minutum (Hymenoptera: Trichogrammatidae). Can. Entomol. 114: 693-698; 1982.

Stairs, G. R.; Fraser, T.; Fraser, M. Changes in growth and virulence of a nuclear polyhedrosis virus from Choristoneura fumiferana after passage in Tricoplusia ni and Galleria mellonella. J. Invertebr. Pathol. 38: 230-235; 1981.

Stein, John D. Insects associated with Acacia Koa seed in Hawaii. Environ. Entomol. 12(2): 299-302; 1983.

Stephen, F. M. Southern pine beetle research in Arkansas. Discovery 2(2): 12-13; 1982.

Stevens, Robert E.; Brewer, J. Wayne; Leatherman, David A. Insects associated with ponderosa pine in the Rocky Mountains and the Southwest. Gen. Tech. Rep. RM-94. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1982. 44 p.

Stock, M. W.; Robertson, J. L. Quality assessment and control in a western spruce budworm laboratory colony. Entomol. Exp. and Appl. 32: 28-32; 1982.

Szittner, E. B.; Morse, D.; Grant, G. G.; Meighen, E. A. Development of a bioluminescense assay for aldehyde pheromones of insects. III. Analysis of airborne pheromone. J. Chem. Ecol. 8(6): 935-945; 1982.

Theroux, Leon J.; Fellin, David G. Recovering western spruce budworm larvae from dispersal sticky traps covered with volcanic ash. Res. Note INT-323. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1982. 5 p.

Tilden, Paul E.; Bedard, William D.; Lindahl, Kenneth Q., Jr.; Wood, David L. Trapping Dendroctonus brevicomis: changes in attractant release rate, dispersion of attractant, and silhouette. J. Chem. Ecol. 9(3): 311-321; 1983.

Tsomides, Leonidas; Gibbs, K. Elizabeth; Jennings, Daniel T. Species of Odonata feeding on Lepidoptera in spruce-fir forests of Maine. [Orono, ME: Maine Life Sciences and Agricultural Experiment Station]; Res. in the Life Sci. 30(1): 1-12; 1982.

Valentine, H. T.; Podgwaite, J. D. Modeling the role of NPV in gypsy moth population dynamics. In: Proceedings, 3d International colloquim on invertebrate pathology; 1982 September 5-10; Brighton, England. New York: Academic Press; 1982: 353-356.

Valentine, Harry T. Budbreak and leaf growth functions for modeling herbivory in some gypsy moth hosts. For. Sci. 29(3): 607-617; 1983.

Valentine, Harry T.; Wallner, William E.; Wargo, Philip M. Nutritional changes in host foliage during and after defoliation, and their relation to the weight of gypsy moth pupae. Oecologia (Berl.) 57: 298-302; 1983.

Versoi, P. L.; Yendol, W. G. Discrimination by the parasite Apanteles melanoscelus between healthy and virus-infected gypsy moth larvae. Environ. Entomol. 11(1): 42-45; 1982.

Wagner, Terence L.; Fargo, W. Scott; Keeley, Larry L.; [and others]. Effects of sequential attack on gallery construction, oviposition and reemergence by Dendroctonus frontalis (Coleoptera: Scolytidae). Can. Entomol. 114: 491-502; 1982.

Wallner, W. E.; Dubois, N. R.; Grinberg, P. S. Alteration of parasitism by Rogas lymantriae (Hymenoptera: Braconidae) in Bacillus thruingiensis-stressed gypsy moth (Lepidoptera: Lymantriidae). J. Econ. Entomol. 76(2): 275-277; 1983.

Weber, B. C. First report on the occurrence of Xyleborinus gracilis (Eichhoff) in the United States (Coleoptera: Scolytidae). Coleopt. Bull. 36(2): 175; 1982.

Weber, B. C.; McPherson, J. E. Annotated bibliography of the ambrosia beetle Xylosandrus germanus (Coleoptera: Scolytidae). Great Lakes Entomol. 15(3): 175-183; 1982.

Weber, B. C.; McPherson, J. E. Life history of the ambrosia beetle Xylosandrus germanus (Coleoptera: Scolytidae). Ann. Entomol. Soc. Am. 76(3): 455-462; 1983.

Weber, B. C.; McPherson, J. E. The distribution of Xylosandrus germanus in America north of Mexico (Coleoptera: Scolytidae). Great Lakes Entomol. 15(3): 171-174; 1982.

Weseloh, R. M.; Andreadis, T. G.; Moore, R. E. B.; [and others]. Field confirmation of a mechanism causing synergism between Bacillus thuringiensis and the gypsy moth parasitoid, Apanteles melanoscelus. J. Invertebr. Pathol. 41: 99-103; 1983.

Wickman, Boyd E. Degree-day accumulation related to the phenology of Douglas-fir tussock moth and white fir during five seasons of monitoring in southern Oregon. Res. Note PNW-392. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1981. 10 p.

Insect Control and Management Strategies

Anonymous. Insecticides for the southern pine beetle. For. Bull. R8-FB/P3. Southern Pine Beetle Fact Sheet No. 5 (Revised). Atlanta, GA.: U.S. Department of Agriculture, Forest Service, Southern Region; 1983. 2 p.

Belanger, Roger P.; Hedden, Roy L.; Anderson, Robert L.; Dennington, Roger W. Coping with southern pine beetles. For. Farmer 42(8): 8-9; 1983.

Berisford, C. Wayne; Turnbow, Robert H., Jr.; Brady, U. Eugene. Selective application of insecticides for prevention of southern pine beetle attack. J. Econ. Entomol. 75(3): 458-461; 1982.

Bible, Thomas D. Harvest site sequencing and optimal stopping rules for harvesting multiple sale blocks over time. For. Sci. 28(4): 697-705; 1982.

Blanche, C. A.; Hodges, J. D.; Nebeker, T. E.; Moehring, D. M. Southern pine beetle: the host dimension. Stn. Bull. 917. Mississippi State, MS: Mississippi Agricricultural and Forest Experiment Station; 1983. 29 p.

Brewer, J. Wayne; Stevens, Robert E.; Leatherman, David A. Douglas-fir tussock moths. Service in Action Leafl. 5.542. Fort Collins, CO: Colorado State University Extension Service; 1983. 2 p.

Bryant, Charles M.; Pase, H. A. III; Billings, R. F. Microcomputers aid southern pine beetle management. In: Moser, J. W., Jr., ed. Conf. Proc., Microcomputers: a new tool for foresters; 1982 May 18-20; Purdue Univ., West Lafayette. SAF 82-05. Bethesda, MD: Society of American Foresters; 1982: 121-124.

Carlson, Clinton E.; Fellin, David G.; Schmidt, Wyman C. The western spruce budworm in northern Rocky Mountain forests: a review of ecology, insecticidal treatments and silvicultural practices. In: Management of second-growth forests: the state of knowledge and research needs: Proceedings of a symposium; 1982 May 14; Missoula, MT. Missoula, MT: University of Montana, School of Forestry, Montana Forest and Conservation Experiment Station; 1982: 76-103.

Colbert, J. J.; Sheehan, Katharine; Crookston, Nicholas L. Supporting decisions on western spruce budworm in forest management using simulation models. In: Lauenroth, William K.; Skogerboe, Gaylord V.; Flug, Marshall, eds. Analysis of ecological systems: state-of-the-art in ecological modelling: Proceedings of symposium; 1982 May 24-28; Fort Collins, CO. Amsterdam; Oxford; New York: Elsevier Scientific Publ. Co.; 1983: 99-105.

Cole, Walter E.; Cahill, Donn B.; Lessard, Gene D. Harvesting strategies for management of mountain pine beetle infestations in lodgepole pine: preliminary evaluation, East Long Creek Demonstration Area, Shoshone National Forest, Wyoming. Res. Note INT-333. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 11 p.

Coulson, R. N.; Stark, R. W. Integrated management of bark beetles. In: Mitton, J. B.; Sturgeon, K. B., eds. Bark beetles in North American conifers: a system for the study of evolutionary biology. Austin, TX: University of Texas Press; 1982: 315-349.

Crisp, C. E.; Look, M. Effect of esterification and side-chain alkylation on alteration of translocation characteristics of methamidophos. Xenobiotica 12(8): 469-479; 1982.

DeMars, Clarence J., Jr.; Roettgering, Bruce H. Western pine beetle. For. Insect and Dis. Leafl. 1. Washington, DC: U.S. Department of Agriculture, Forest Service; 1982. 8 p.

Dimond, J. B. Effects of aerial sprays of undiluted Bacillus thuringiensis formulations on spruce budworm. Misc. Rep. 274. Orono, ME: University of Maine Agricultural Experiment Station; 1982. 9 p.

Dix, M. E.; Van Deusen, J. L. Carbofuran applications fail to reduce damage to seeds and cones of Scotch pine in North Dakota and Nebraska. Res. Note RM-430. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1982. 5 p.

Donley, David E. Effect of timber stand improvement on population levels of the red oak borer, Enaphalodes rufulus (Haldeman)(Coleoptera: Cerambycidae). In: Muller, Robert N., ed. Proceedings, 4th Central hardwood forestry conference; 1982 November 8-10; Lexington, KY. Lexington, KY: University of Kentucky, Department of Forestry; 1982: 47-50.

Dubois, N. R. Research aspects on the use of Bacillus thuringiensis. In: Proceedings, 1982 National Gypsy Moth Review; 1982 December 7-9; Harrisburg, PA. Middletown, PA: Pennsylvania Department of Environmental Resources; 1983: 82-85.

Elner, J. K.; Wildish, D. J.; Johnston, D. W. Carbon-14 assimilation by algal communities of obigotrophic ponds treated with formulated aminocarb. Arch. Environ. Contam. Toxicol. 11: 675-679; 1982.

Etkind, Paul H.; ODell, Thomas M.; Canada, Andrew T.; [and others]. The gypsy moth caterpillar: a significant new occupational and public health problem. J. Occup. Med. 24(9): 659-662; 1982.

Farris, M. E.; Appleby, J. E.; Weber, B. C. Walnut caterpillar. For. Insect and Dis. Leafl. 41. Washington, DC: U.S. Department of Agriculture, Forest Service; 1982. 6 p.

Fellin, David G. Chemical insecticides vs. the western spruce budworm: after three decades, what's the score? West. Wildlands 9(1): 8-12; 1983.

Fellin, David G. Management alternatives for the western spruce budworm and the Douglas-fir tussock moth. In: Forest pesticides in the Pacific Northwest: Proceedings of a symposium; 1982 February 23-24; Pullman, WA. Pullman, WA: Washington State University, Cooperative Extension Service; 1983: 10 p.

Fellin, David G.; Dewey, Jerald E. Western spruce budworm. For. Insect and Dis. Leafl. 53. Washington, DC: U.S. Department of Agriculture, Forest Service; 1983. 10 p.

Fellin, David G.; Hengel, Paul W. Deploying pheromone-baited traps for the western spruce budworm and other defoliating insects. Res. Note INT-330. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 7 p.

Fellin, David G.; Shearer, Ray C.; Carlson, Clinton E. Western spruce budworm in the Northern Rocky Mountains. West. Wildlands 9(1): 2-7; 1983.

Ferrell, George T.; Scharpf, Robert F. Stem volume losses in grand firs topkilled by western spruce budworm in Idaho. Res. Paper PSW-164. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station; 1982. 10 p.

Fleming, R. A.; Shoemaker, C. A.; Stedinger, J. R. Analysis of the regional dynamics of unsprayed spruce budworm (Lepidoptera: Tortricidae) populations. Environ. Entomol. 12(3): 707-713; 1983.

Flexner, J. L.; Bassett, J. R.; Montgomery, B. A.; [and others]. Spruce-fir silviculture and the spruce budworm in the Lake States. Handb. 83-2. Ann Arbor, MI: Michigan Cooperative Forest Pest Management Program; 1983. 30 p.

Force, J. E.; Robertson, J. L.; Stock, M. W.; Williams, C. B. Probability model of insecticide efficacy for western spruce budworm (Lepidoptera: Tortricidae) and Douglas-fir tussock moth (Lepidoptera: Lymantriidae). Environ. Entomol. 11(6): 1170-1177; 1982.

Fowler, Richard F.; Wilson, Louis F.; Lundgren, Allen L. Projected red pine yields from aldrin-treated and untreated stands damaged by white grub (Coleoptera: Scarabaeidae) and other agents at stand age ten years. Great Lakes Entomol. 15(3): 165-170; 1982.

Frye, R. D.; Hard, John; Carey, Donald; Dix, M. E. Day and night application of Bacillus thuringiensis for cankerworm control. North Dakota Res. Rep. 94. Fargo, ND. North Dakota State University, Agriculture Experiment Station; 1983. 10 p.

Furniss, Malcolm M.; Markin, George P.; Hager, Victor J. Aerial application of Douglas-fir beetle antiaggregative pheromone: equipment and evaluation. Gen. Tech. Rep. INT-137. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1982. 9 p.

Gajda, Thomas P.; Lamb, Fred M.; Ifju, Geza. How to utilize beetle-killed southern pine timber--a slide tape presentation. In: Proceedings, Technical Association of the Pulp & Paper Industry, 1982 Research & Development Division Conference; August 29-September 1; Asheville, NC. Atlanta, GA: Tappi Press: 1982: 111.

Gargiullo, Paul M.; Berisford, C. Wayne; Canalos, Christopher G.; Richmond, James A. How to time dimethoate sprays against the Nantucket pine tip moth. Ga. For. Res. Pap. 44. Macon, GA: Georgia Forestry Commission, Research Division; 1983. 11 p.

Gasner, David A.; Herrick, Owen W.; DeBald, Paul S.; Acciavatti, Robert E. Changes in forest condition associated with gypsy moth. J. For. 81(3): 155-157; 1983.

Gasner, David A.; Herrick, Owen W.; DeBald, Paul S.; Cota, Jesus A. New turf for gypsy moth; there's more at risk downrange. Res. Pap. NC-519. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1983. 4 p.

Gottschalk, K. W. Silvicultural alternatives for coping with the gypsy moth. Conn. Timber Trends 4(3): 6-10; 1983.

Graves, Clinton H., Jr.; Borazjani, Hamid; Filer, T. H.; [and others]. The potential of growth retardants for compacting tree size and influencing disease and insect resistance of mature pecan trees. In: Proceedings, Southeastern Pecan Growers Association; 1983 March 14-15; New Orleans, LA. West Point, MS: Pecan Growers Association; 1983; 76: 87-93.

Greene, Lula E. Simulated natural encounters of the insecticides, chlorpyrifos and carbaryl, by western pine beetle predators Enoclerus lecontei and E. sphegeus (Coleoptera: Cleridae). Environ. Entomol. 12(2): 502-504; 1983.

Hansen, R. W.; Dimond, J. B. The feeding biology of spruce budworm on several hosts with reference to timing of insecticidal sprays. Misc. Rep. 266. Orono, ME: University of Maine Life Sciences Agricultural Experiment Station; 1982. 19 p.

Haverty, Michael I.; Page, Marion; Shea, Patrick J.; [and others]. Drift and worker exposure resulting from two methods of applying insecticides to pine bark. Bull. Environ. Contam. and Toxicol. 30: 223-228; 1983.

Hedden, Roy L. Evaluation of loblolly pine thinning regimes for reduction of losses from southern pine beetle attack. In: Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 371-375.

Hertel, G. D.; Thatcher, R. C.; Mason, G. N. Controlling the southern pine beetle. The Consultant 28(2): 38-41; 1983.

Hicks, Ray R., Jr.; Mason, Garland N. Southern pine beetle hazard rating works in east Texas. Southwest. Entomol. 7(3): 174-180; 1982.

Hodson, A. C.; French, D. W.; Jensen, R. A.; Bartelt, R. J. The susceptibility of jack pine from Lake States seed sources to insects and diseases. Res. Pap. NC-225. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 12 p.

Hoy, James B.; Globus, Penelope A.; Norman, Kevin D. Electronic tracking and recording system for behavioral observations, with application to toxicology and pheromone assay. J. Econ. Entomol. 76(3): 678-680; 1983.

Huber, Cindy M.; Cost, N. D.; Sheffield, R. M. Susceptibility rating of forests in North Carolina to gypsy moth defoliation. For. Pest Manage. Rep. 83-1-7. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Area, State and Private Forestry; 1982. 29 p.

Huber, Cindy M.; Cost, N. D.; Sheffield, R. M. Susceptibility rating of forests in South Carolina to gypsy moth defoliation. For. Pest Manage. Rep. 83-1-8. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Area, State and Private Forestry; 1982. 27 p.

Hyland, James R. Hazard rating--A strategy for battle against beetle. Alabama's Treasured For. 2(1): 26-28; 1983.

Jennings, Daniel T.; Stevens, Robert E. Southwestern pine tip moth. For. Insect and Dis. Leafl. 58. Washington, DC: U.S. Department of Agriculture, Forest Service; 1982. 7 p.

Jones, Alice S.; Jones, Louis A.; Hastings, Felton L. A rapid, direct high pressure liquid chromatographic method for the simultaneous quantitative determination of carbaryl and -napthol in aqueous samples. J. Agric. Food Chem. 30(5): 997-999; 1982.

Kaya, Harry K.; Reardon, Richard C. Evaluation of Neoaplectana carpocapsae for biological control of the western spruce budworm, Choristoneura occidentalis: ineffectiveness and persistence of tank mixes. J. Nematol. 14(4): 595-597; 1982.

Kucera, Daniel R.; Taylor, Robert G. Spruce budworms situation in North America 1982. Misc. Publ. 1436. Washington, DC: U.S. Department of Agriculture, Forest Service; 1983. 23 p.

Larsson, S.; Oren, R.; Waring, R. H.; Barrett, J. W. Attacks of mountain pine beetle as related to tree vigor of ponderosa pine. For. Sci. 29(2): 395-402; 1983.

Leatherman, David A.; Brewer, J. Wayne; Stevens, Robert E. Western spruce budworms. Service in Action Leafl. 5.543. Fort Collins, CO: Colorado State University Extension Service; 1983. 2 p.

Lewis, F. B. Deposit assessment techniques for Bt. CANUSA Data Fact Sheet. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; May 1982. 2 p.

Lewis, F. B. Gypsy Moth NPV Research - Hamden. In: Proceedings, 1982 National Gypsy Moth Review; 1982 December 7-9; Harrisburg, PA. Middletown, PA: Pennsylvania Department of Environmental Resources; 1983: 124-125.

Lewis, F. B. Status of Gypchek. In: Proceedings, 1980 National Gypsy Moth Review; 1980 December 9-11; Baltimore, MD. Annapolis, MD: Maryland Department of Agriculture and National Gypsy Moth Management Board; 1980: 28.

Lewis, Franklin B. Biological insecticides. In: Proceedings, Southern conference on the gypsy moth; 1982 September 14-15; Crossmore, NC. Raleigh, NC: State of North Carolina Department of Agriculture; 1982: 58-59.

Linnane, J. P.; Stelzer, M. J. Protecting ornamental and shade trees. Agric. Handb. 604. Washington, DC: U.S. Department of Agriculture, Forest Service; 1982. 11 p. In cooperation with: Douglas-fir Tussock Moth Program.

Markin, George P. Drift of insecticidal spray by cold air drainage winds in western mountains. Res. Note PSW-360. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station; 1982. 6 p.

Markin, George P.; Grimble, David G. Reldan insecticide field-tested on western spruce budworm, Payette National Forest, Idaho, 1977. Res. Note PSW-361. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station; 1982. 7 p.

Markin, George P.; Johnson, David R. Carbaryl applied at reduced dosage rates for control of western spruce budworm. Res. Pap. PSW-170. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station; 1983. 3 p.

Martignoni, Mauro E.; Stelzer, Milton J.; Iwai, Paul J. Baculovirus of Autographa californica (Lepidoptera: Noctuidae): a candidate biological control agent for Douglas-fir tussock moth (Lepidoptera: Lymantriidae). J. Econ. Entomol. 75(6): 1120-1124; 1982.

Mason, G. N.; Hertel, G. D.; Thatcher, R. C. Southern pine beetle hazard ratings: uses, implementation, and evaluation. In: Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 365-370.

Mason, Garland N. Texas hazard rating guide. For. Bull. R8-FB/P4. Southern Pine Beetle Fact Sheet No. 28. Atlanta, GA: U.S. Department of Agriculture, Forest Service, Southern Region; 1983. 2 p.

McCambridge, William F. Field tests of insecticides to protect ponderosa pine from the mountain pine beetle (Coleoptera scolytidae). J. Econ. Entomol. 75(6): 1080-1082; 1982.

McClure, Mark S.; Dahlsten, Donald L.; DeBarr, Gary L.; Hedden, Roy L. Control of pine bast scale in China. J. For. 81(7): 440, 475-478; 1983.

Mohamed, M. A.; Coppel, H. C.; Podgwaite, J. D. Artificially-induced nucleopolyhedrosis virus epizootic in populations of Neodiprion sertifer (Hymenoptera: Diprionidae). Environ. Entomol. 12(2): 397-399; 1983.

Mohamed, M. A.; Coppel, H. C.; Podgwaite, J. D.; Rollinson, W. D. Accummulation of nucleopolyhedrosis virus of the European pine sawfly (Hymenoptera: Diprionidae) as a function of larval weight. J. Econ. Entomol. 72(2): 287-289; 1983.

Mohamed, M. A.; Coppel, H. C.; Podgwaite, J. D. Persistence in soil and on foliage of nucleopolyhedrosis virus on the European pine sawfly, Neodiprion sertifer (Hymenoptera: Diprionidae). Environ. Entomol. 11(5): 1116-1118; 1982.

Montgomery, B. A.; Simmons, G. A.; Witter, J. A.; Flexner, J. L. The spruce budworm handbook: a management guide for spruce-fir stands in the Lake States. Handb. 82-7. Ann Arbor, MI; Michigan Cooperative Forest Pest Management Program; 1982. 35 p.

Moore, Lincoln M.; Wilson, Louis F. Recent advances in research of some pest problems by hybrid Populus in Michigan and Wisconsin. In: Hansen, Edward A., comp. Intensive plantation culture: 12 years research. Gen. Tech. Rep. NC-91. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1983: 94-101.

Morris, O. N. Report of the 1981 cooperative Bacillus thuringiensis (B.t.) spray trials. Saulte St. Marie, ON: Forest Pest Management Institute, Canadian Forestry Service; 1982. 87 p.

Nebeker, T. Evan; Moehring, David M.; Hodges, John D.; [and others]. Impact of thinning on host susceptibility. In: Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 376-381.

Nettleton, Wesley A.; Hain, Fred P. The life history, foliage damage, and control of the balsam twig aphid, Mindarus abietinus (Homoptera: Aphididae), in Fraser fir Christmas tree plantations of western North Carolina. Can. Entomol. 114: 155-165; 1982.

Nord, John C.; DeBarr, Gary L. Contact toxicities of 12 insecticides to Leptoglossus corculus adults (Hemiptera: Coreidae). Can. Entomol. 115: 211-214; 1983.

Nord, John C.; Ghent, John H.; Thomas, Hollis A.; Doggett, Coleman A. Control of pales and pitch-eating weevils in the South. For. Rep. SA-FR 21. Atlanta, GA: U.S. Department of Agriculture, Forest Service, Southern Region; 1982. 24 p.

Nyrop, J. P.; Simmons, G. A.; Mosher, D. G. The economics of pre-salvage alternatives as a method of minimizing spruce budworm losses. Tech. Rep. 82-9. East Lansing, MI: Michigan Cooperative Forest Pest Management Program; 1982. 57 p.

Palmer, Marguerita A.; Nicholls, Thomas H. Diagnosis and control of cutworm damage on conifer seedlings in nursery seedbeds. Tree Plant. Notes 34(2): 20-21; 1983.

Pieper, G. R. Toxicities of carbaryl, chlorpyrifos, and permethrin insecticide sprays applied to the pine reproduction weevil. J. Ga. Entomol. Soc. 17(4): 442-446; 1982.

Podgwaite, J. D.; Bruen, R. B.; Shapiro, M. Microorganisms associated with production lots of the nucleopolyhedrosis virus of the gypsy moth, Lymantria dispar (Lep.: Lymantriidae). Entomophaga. 28(1): 9-16; 1983.

Rauf, Aunu; Cecich, R. A.; Benjamin, D. M. Carbofuran controls the pine conelet bug in a jack pine seed orchard. For. Res. Notes 250. Madison, WI: University of Wisconsin, Department of Forestry; 1982. 4 p.

Reardon, R. C.; Johnson, D. R.; Narog, M. G.; [and others]. Efficacy of two formulation of Bacillus thuringiensis on populations of spruce budworm (Lepidoptera: Tortricidae) on balsam fir in Wisconsin. J. Econ. Entomol. 75(3): 509-514; 1982.

Richmond, Charles E. Thiodicarb and sulprophos applied to western spruce budworm, Choristoneura occidentalis (Lepidoptera: Tortricidae), with an aerial spray simulator. Can. Entomol. 115: 357-359; 1983.

Richmond, James A.; Cunningham, Patricia A. Evaluation of diflubenzuron against egg and larval stages of the Nantucket pine tip moth. J. Ga. Entomol. Soc. 18(2): 280-284; 1983.

Robertson, Jacqueline L. Effect of body weight on lethal effectiveness of a juvenile hormone analogue applied to male and female western spruce budworm (Choristoneura occidentalis) (Lepidoptera: Tortricidae). Can. Entomol. 114: 1063-1068; 1982.

Robertson, Jacqueline L.; Look, Melvin. Toxicity of isothiourea lepidoptericides to western spruce budworm. J. Ga. Entomol. Soc. 17(4): 466-471; 1982.

Rogan, R. G.; Simmons, G. A.; Montgomery, B. A.; Witter, J. A. Spruce budworm technology transfer in the Lake States: results of the needs assessment of forest managers. Tech. Rep. 82-8. East Lansing, MI: Michigan Cooperative Forest Pest Management Program; 1982. 74 p.

Rogan, R. G.; Simmons, G. A. The feasibility of audio-cassette tapes in technology transfer; the spruce budworm technology transfer program. Tech. Rep. 83-1. East Lansing, MI: Michigan Cooperative Forest Pest Management Program; 1983. 13 p.

Sapio, Frank J.; Wilson, Louis F.; Ostry, Michael E. A split-stem lesion on young hybrid Populus trees caused by the tarnished plant bug, Lygus lineolaris (Hemiptera [Heteroptera]: Miridae). Great Lakes Entomol. 15(4): 237-246; 1982.

Schmidt, Wyman C.; Fellin, David G.; Carlson, Clinton E. Alternatives to chemical insecticides in budworm susceptible forests of the Northern Rockies. West. Wildlands 9(1): 13-19; 1983.

Shea, Patrick J.; Reardon, Richard C.; Smith, Stamford D. Techniques for monitoring the effects of insecticides on forest fauna. Agric. Handb. 602. Washington, DC: U.S. Department of Agriculture, Forest Service; 1982. 25 p.

Smith, Richard H. Log bioassay of residual effectiveness of insecticides against bark beetles. Res. Pap. PSW-168. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station; 1982. 8 p.

Solomon, J. D. Impact and control of insect borers in pecan trees. In: Outz, John, ed. Proceedings, Mississippi Entomological Association; 1982 November 10-11; Mississippi State, MS. Mississippi State, MS: Mississippi Agricultural and Forestry Experiment Station; 1982: 2(1): 45-46.

Sower, L. L.; Daterman, G. E.; Funkhouser, W.; Sartwell, C. Pheromone disruption controls Douglas-fir tussock moth (Lepidoptera: Lymantriidae) reproduction at high insect densities. Can. Entomol. 115: 965-969; 1983.

Stevens, Robert E.; Leatherman, David A.; Brewer, J. Wayne. Ponderosa pine needle miners. Service in Action Leafl. 5.544. Fort Collins, CO: Colorado State University Extension Service; 1983. 2 p.

Thatcher, R. C. Identification and control of insect attack. For. Farmer 42(5): 48-50; 1983.

Thatcher, R. C. The development of integrated management strategies for the southern pine beetle. In: Increasing forest productivity: Proceedings, 1981 convention of the Society of American Foresters; 1981 September 27-30; Orlando, FL. SAF 82-01. Bethesda, MD: Society of American Foresters; 1982: 177-184.

Thatcher, R. C.; Mason, G. N.; Hertel, G. D.; Searcy, J. L. Detecting and controlling the southern pine beetle. South. J. Appl. For. 6(3): 153-159; 1982.

Thatcher, Robert C.; Barry, Patrick J. Southern pine beetle. For. Insect and Dis. Leafl. 49 (Revised). Washington, DC: U.S. Department of Agriculture, Forest Service; 1982. 7 p.

Thomas, H. A.; Miller, Thomas; McNab, W. H. Pine tip moth damage in relation to site preparation and regeneration method for loblolly pine. Res. Note SE-311. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1982. 3 p.

Trappe, J. M. Alternative methods for drying fungi and controlling insects in herbaria. Mycologia 74(6): 1014-1015; 1982.

Turnbow, R. H. A research update: FERRET - the question analysis routine for the southern pine beetle decision support system. For. Bull. R8-FB/P2. Southern Pine Beetle Fact Sheet No. 27. Atlanta, GA: U.S. Department of Agriculture, Forest Service, Southern Region; 1983. 2 p.

Turnbow, R. H.; Coulson, R. N.; Hu, L.; Billings, R. F. Procedural guide for using the interactive version of the TAMBEETLE model of southern pine beetle population and spot dynamics. Misc. Publ. 1518. College Station, TX: Texas Agricultural Experiment Station; 1982. 23 p.

Twardus, Daniel B.; Brookes, Martha H. A decision-support system for managing western spruce budworm: report from a workshop. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1983. 18 p. Adm. Rep.

Van Sambeek, J. W. Reduced brood production of southern pine beetles by difulubenzuron. Res. Note SO-284. New Orleans, LA: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station; 1982. 5 p.

Wallner, William E. Gypsy moth and the forest land manager. Conn. Timber Trends 4(1): 4-5, 8; 1983.

Walters, Earl O. Bending strength loss for SPB-killed timber. Circ. 260. College Station, TX: Texas Forestry Service; 1982. 4 p.

Walton, G. S.; Lewis, F. B. Spruce Budworm Core B.t. Test - 1980: Combined summary. Res. Pap. NE-506. Broomall, PA: U.S. Department of Agriculture, Forest Service; Northeastern Forest Experiment Station; 1982. 12 p.

Werner, R. A.; Elert, E. E.; Holsten, E. H. Evaluation of beetle-killed white spruce for pulp and paper. Can. J. For. Res. 13(2): 246-250; 1983.

Werner, R. A.; Holsten, E. H. Mortality of white spruce during a spruce beetle outbreak on the Kenai Peninsula in Alaska. Can. J. For. Res. 13(1): 96-101; 1983.

Wickman, Boyd E.; Mason, Richard R.; Trostle, Galen C. Douglas-fir tussock moth. For. Insect and Dis. Leafl. 86. Washington, DC: U.S. Department of Agriculture, Forest Service; 1981. 10 p.

Williams, Carroll B., Jr.; Robertson, Jacqueline L. Spray volume measurement as an interface between laboratory and field efficacy data. J. Econ. Entomol. 76(2): 215-218; 1983.

Williams, Carroll B., Jr.; Shea, Patrick J. Computer simulation for integrated pest management of spruce budworms. Res. Pap. PSW-159. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station; 1982. 11 p.

Wilson, Louis F.; Millers, Imants. Pine root collar weevil--its ecology and management. Tech. Bull. 1675. Washington, DC: U.S. Department of Agriculture, Forest Service; 1983. 34 p.

Witter, J. A.; Montgomery, B. A.; Lynch, A. M.; Flexner, J. L. Spruce budworm; major problem in Lake States. Ann Arbor, MI: University of Michigan, School of Natural Resources News; 1983: 5-7.

Woods, Ruth F.; Moore, Lincoln M.; Wilson, Louis F.; [and others]. Performance of 3-year old hybrid poplar clones on glacial soils in lower Michigan. In: Thielges, Bart A., ed. Proceedings, 7th North American forest biology workshop; 1982 July 26-28; Lexington, KY. Lexington, KY: University of Kentucky, Department of Forestry; 1982: 417-422.

Disease Detection and Evaluation

Aho, Paul E. Indicators of cull in western Oregon conifers. Gen. Tech. Rep. PNW-144. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1982. 17 p.

Larsen, Michael J.; Lombard, Frances F. Fibroporia angulopora, a new species (Aphyllophorales, Polyporaceae) associated with brown-rot of Pseudotsuga menziesii residue in western Oregon. Mycologia 75(4): 623-627; 1983.

Lundquist, J. E.; Miller, Thomas; Powers, H. R., Jr. A rapid technique for determining resistance of slash pines to fusiform rust. Phytopathology 72(6): 613-615; 1982.

Nelson, David L.; Tiernan, Charles F. Winter injury of sagebrush and other wildland shurbs in the western United States. Res. Pap. INT-314. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 17 p.

Oak, Steven W.; Cost, N. D.; Glover, J. F. Acres affected and losses caused by pitch canker, 1980. For. Pest Manage. Rep. 82-1-83. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Area, State and Private Forestry; 1982. 27 p.

Ostry, Michael E. How to identify ink spot of poplars. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 6 p.

Shortle, Walter C. Using space-age technology to determine tree quality. In: Proceedings, 10th annual hardwood symposium; 1982 May 12-15; Cashiers, NC. Asheville, NC: Hardwood Research Council; 1982: 92-94.

Williams, Ralph E.; Marsden, Michael A. Modeling root disease center occurrence in northern Idaho forests. Can. J. For. Res. 12(4): 876-882; 1982.

Disease Biology

Aho, P. E.; Filip, G. M. Incidence of wounding and Echinodontium tinctorium infection in advanced white fir regeneration. Can. J. For. Res. 12(3): 705-708; 1982.

Alexander, Martin E.; Hawksworth, Frank G. Forest fires and dwarf mistletoes (Arceuthobium spp.): Bibliography supplement. Edmonton, Alberta: Canadian Forestry Service, Northern Forestry Research Centre Report; 1982. 10 p.

Ballard, R. G.; Walsh, M. A.; Cole, W. E. Blue-stain fungi in xylem of lodgepole pine: a light-microscope study on extent of hyphal distribution. Can. J. Bot. 60(11): 2334-2341; 1982.

Barrows-Broaddus, J.; Dwinell, L. D. Histopathology of Fusarium moniliforme var. subglutinans in four species of southern pines. Phytopathology 73(6): 882-889; 1983.

Beard, T. H.; Martin, N. E.; Adams, D. L. Effects of habitat type and elevation on occurrence of stalactiform blister rust in stands of lodgepole pine. Plant Dis. 67(6): 648-651; 1983.

Carlson, Clinton E.; Gilligan, Carma J. Histological differentiation among abiotic causes of conifer needle necrosis. Res. Pap. INT-298. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 17 p.

Carpenter, Steven E.; Trappe, James M.; Hunt, Gary A. Observations on fungal succession on recent volcanic deposits of Mount St. Helens. In: Evett, Jay F., ed. Proceedings, 39th meeting of the Oregon Academy of Science; 1981 February 28; [Place of meeting unknown]. Corvallis, OR: Oregon State University, Oregon Academy of Science; 1982; 15: 36-44.

Cobb, F. W., Jr.; Slaughter, G. W.; Rowney, D. L.; DeMars, C. J. Rate of spread of Ceratocystis wageneri in ponderosa pine stands in the central Sierra Nevada. Phytopathology 72(10): 1359-1362; 1982.

Delucca, A. J., II; Ciegler, A.; Dunn, J. J.; Kuhlman, E. The inability of Fusarium species extracts to induce dieback in pines. Mycopathology 79: 105-108; 1982.

Dropkin, V. H. Pine wilt--an overview. In: Appleby, James E.; Malek, Richard B., eds. Proceedings, 1982 national pine wilt disease workshop; 1982 April 14-15; Rosemont, IL. Urbana, IL: University of Illinois; 1982: 7-10.

Dropkin, Victor H. Nematology research in Missouri. In: Appleby, James E.; Malek, Richard B., eds. Proceedings, 1982 national pine wilt disease workshop; 1982 April 14-15; Rosemont, IL. Urbana, IL: University of Illinois; 1982: 86-88.

Dwinell, L. D.; Barrows-Broaddus, J. B. Variability of host and pathogen in the pitch canker complex. In: Resistance to diseases and pests in forest trees. Proceedings, 3d International workshop on the genetics of host-parasite interactions in forestry; 1980 September 14-21; Wageningen, The Netherlands. Wageningen, The Netherlands: Centre for Agricultural Publishing and Documentation; 1982: 283-286.

Dwinell, L. David; Barrows-Broaddus, Jane. Pine wilt and pitch canker of Virginia pine in seed orchards. In: Proceedings, 17th Southern forest tree improvement conference; 1983 June 6-9; Athens, GA. Athens, GA: University of Georgia; 1983: 55-62.

Farr, Wilbur A.; Shaw, Charles G., III. Initial testing of the shigometer in healthy even-aged stands of western hemlock and Sitka spruce in southeast Alaska. In: Jacobi, William R., comp. Proceedings, 30th annual western international forest disease work conference; 1982 September 12-16; Fallen Leaf Lake, CA. Fort Collins, CO: Colorado State University; 1983: 15-22.

Friedman, Rachel. Environmental factors related to the occurrence of Pleuricospora fimbriolata (Achlorophyllous ericaceae) at Grassy Overlook, Oregon Coast Ranges. In: Evett, Jay F., ed. Proceedings, 39th meeting of the Oregon Academy of Science; 1981 February 28; [Place of meeting unknown]. Corvallis, OR: Oregon State University, Oregon Academy of Science; 1982; 15: 45-58.

Froelich, R. C.; Nance, W. L.; Snow, G. A. Size and growth of planted slash pines infected with fusiform rust. For. Sci. 29(3): 527-534; 1983.

Hawksworth, F. G. Mistletoes of New Mexico. Native Plant Soc. Newsl. 7(6): 9-10; 1982.

Hawksworth, Frank G. Mistletoe literature of the world. Kew, England: Royal Botanic Garden. The Golden Bough 2: 5-8; 1983.

Hawksworth, Frank G.; Dixon, Cristine S.; Krebill, Richard G. Peridermium bethelii: a rust associated with lodgepole pine dwarf mistletoe. Plant Dis. 67(7): 729-733; 1983.

Hinds, Thomas E.; Wood, Robert E.; Bassett, Richard L. Wounds and decay in residual corkbark fir. Res. Pap. RM-247. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1982. 6 p.

Hodges, Charles S. Needle blight of Port-Orford-cedar caused by Stigmina thujina in Hawaii. Plant Dis. 66(9): 867-869; 1982.

Hodges, Charles S. Pine mortality in Hawaii associated with Botryosphaeria dothidea. Plant Dis. 67(5): 555-556; 1983.

Houston, David R. Basic concepts of diebacks-declines. In: Parks, Bradley O.; Fear, Frank A.; Lambur, Michael T.; Simmons, Gary A., eds. Proceedings, Urban and suburban trees: pest problems, needs, prospects, and solutions; 1982 April 18-20; East Lansing, MI. East Lansing, MI: Michigan State University; 1982: 57-60.

Houston, David R. Chestnut blight--priorities for research. In: Smith, H. Clay; MacDonald, William L., eds. Proceedings, USDA Forest Service American Chestnut Cooperators' meeting; 1982 January 5-7; Morgantown, WV. Morgantown, WV: West Virginia University Books; 1982: 218-225.

Hudler, George W.; Knudsen, Guy R.; Beale, Mary Ann. Dose-response relationships of five conifers to infection by conidia of Gremmeniella abietina. Plant Dis. 67(2): 192-194; 1983.

Jewell, F. F., Sr. Histopathology of the brown spot fungus on longleaf pine needles. Phytopathology 73(6): 854-858; 1983.

Kondo, Eizo; Foudin, Arnold; Linit, Marc; [and others]. Pine wilt disease--nematological, entomological, and biochemical investigations. SR282. Columbia, MO: University of Missouri-Columbia, Agricultural Experiment Station; 1982. 56 p.

Kuhlman, E. G. Infectious hypovirulence. In: 1982 McGraw-Hill yearbook of science and technology. New York: McGraw-Hill; 1982: 367-369.

Kuhlman, E. G. Relationships among swollen superficial cankers, survival of American chestnut trees, and hypovirulence in Endothia parasitica. In: Smith, H. Clay; MacDonald, William L., eds. USDA Forest Service American Chestnut Cooperator's meeting; 1982 January 5-7; Morgantown, WV. Morgantown, WV: West Virginia University Books; 1982: 24-34.

Kuhlman, E. G. Varieties of Gibberella fujikuroi with anamorphs in Fusarium section Liseola. Mycologia 74(5): 759-768; 1982.

Kuhlman, E. G. Vegetative compatibility and hypovirulence conversion in Endothia parasitica: state of the art. In: Smith, H. Clay; MacDonald, William L., eds. Proceedings, USDA Forest Service American Chestnut Cooperator's meeting; 1982 January 5-7; Morgantown, WV. Morgantown, WV: West Virginia University Books; 1982: 210-217.

Kuhlman, E. G.; Dianis, S. D.; Smith, T. K. Epidemiology of pitch canker disease in a loblolly pine seed orchard in North Carolina. Phytopathology 72(9): 1212-1216; 1982.

Larsen, M. J. Notes on tomentelloid fungi. V. Additional new species of Pseudotomentella. Mycologia 75(3): 556-562; 1983.

Larsen, Michael J.; Jurgensen, Martin F.; Harvey, Alan E. N2 fixation in brown-rotted soil wood in an intermountain cedar-hemlock ecosystem. For. Sci. 28(2): 292-296; 1982.

Li, C. Y. Melanin-like pigment in zone lines of Phellinus weirii-colonized wood. Mycologia. 75(3): 562-566; 1983.

Linit, Marc J. Pine wilt disease: entomological investigations. In: Appleby, James E.; Malek, Richard B., eds. Proceedings, 1982 national pine wilt disease workshop; 1982 April 14-15; Rosemont, IL. Urbana, IL: University of Illinois; 1982: 79-83.

Lloyd, F. T. Computer simulated fusiform rust losses from early infections in loblolly plantation. In: Proceedings, Loblolly pine ecosystem (East Region): Proceedings of the symposium; 1982 December 8-10; Raleigh, NC. Raleigh, NC: North Carolina State University, School of Forest Resources; 1983: 198-204.

Lombard, Frances F. A cultural study of Piptoporus soloniensis (Aphyllophorales, Polyporaceae). Mycologia 75(4): 723-727; 1983.

Martin, R. R.; Berbee, J. G.; Omuemu, J. O. Isolation of a potyvirus from declining clones of Populus. Phytopathology 72(9): 1158-1162; 1982.

McCracken, Francis I. Some factors affecting basidiospore ermination of Pleurotus sapidus. Can. J. Bot. 60(9): 1658-1661; 1982.

McDonald, G. I.; Andrews, D. S. Genetic variation of epidemiological fitness traits among single aeciospore cultures of Cronartium ribicola. Phytopathology 72(11): 1391-1396; 1982.

Nakasone, K. K. Cultural and morphological studies on Cystostereum australe (Corticiaceae), a new species from southeastern U.S.A. and Costa Rica. Mycotaxon 17: 269-274; 1983.

Newhouse, Joseph R.; Hoch, Harvey C.; MacDonald, William L. The ultrastructure of Endothia parasitica. Comparison of a virulent with a hypovirulent isolate. Can. J. Bot. 61(2): 389-399; 1983.

Ostry, Michael E.; Daniels, Kathleen; Anderson, Neil A. Downy woodpeckers-a missing link in a forest disease life cycle? The Loon 54(3): 170-175; 1982.

Ostry, Michael E.; Nicholls, Thomas H. A technique for trapping fungal spores. Res. Note NC-283. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 4 p.

Ostry, Michael E.; Nicholls, Thomas H.; French, D. W. Animal vectors of eastern dwarf mistletoe of black spruce. Res. Pap. NC-232. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1983. 16 p.

Palmer, M. A.; Nicholls, T. H. Summary of 1981 research results: Diplodia pinea. In: Forest pest conditions in Wisconsin, Ann. Rep. 1981. Madison, WI: Department of Natural Resources; 1983: 31.

Palmer, M. A.; Nicholls, T. H. Summary of 1981 research results: white pine root rot. In: Forest pest conditions in Wisconsin, Ann. Rep. 1981. Madison, WI: Department of Natural Resources; 1983: 32.

Parmeter, John R., Jr.; Scharpf, Robert F. Stem infection by dwarf mistletoe in California firs. Res. Pap. PSW-165. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station; 1982. 7 p.

Peterson, R. S. Rust fungi (Uredinales) on Cupressaceae. Mycologia 74(6): 903-910; 1983.

Powers, H. R., Jr. Pathogenic variation within Cronartium quercuum f. sp. fusiforme. In: Breeding insect and disease resistant forest trees: Proceedings, Servicewide genetics workshop; 1982 July 19-23; Eugene, OR. Washington, DC: U.S. Department of Agriculture, Forest Service, Timber Management Staff; 1982: 249-258.

Raddi, P.; Powers, H. R., Jr. Relative susceptibility of several European species of pine to fusiform rust. Eur. J. For. Pathol. 12: 442-447; 1982.

Reynolds, Don R.; Dunn, Paul H. Follicolous fungi from Brazil: the new genus Veralucia. Mycologia 74(5): 854-857; 1982.

Schaffer, Bruce; Hawksworth, Frank G.; Beemsterboer, Paul. Effects of dwarf mistletoe and vigor classes on electrical resistance in lodgepole pine. For. Sci. 29(1): 124-126; 1983.

Schaffer, Bruce; Hawskworth, F. G.; Jacobi, W. R. Effects of comandra blister rust and dwarf mistletoe on cone and seed production of lodgepole pine. Plant Dis. 67(2): 215-217; 1983.

Schaffer, Bruce; Hawskworth, Frank G.; Wullschleger, Stan D.; Reid, C. P. Patrick. Cytokinin-like activity related to host reactions to dwarf mistletoes (Arceuthobium spp.). For. Sci. 29(1): 66-70; 1983.

Scharpf, Robert F. Growth of Cytospora abietis on media made from dwarf mistletoe-infected and uninfected branch tissues of red fir. Plant Dis. 67(6): 656-657; 1983.

Scharpf, Robert F. Temperature-influenced growth and pathogenicity of Cytospora abietis on white fir. Plant Dis. 67(2): 137-139; 1983.

Scharpf, Robert F.; Parmeter, J. R., Jr. Population dynamics of dwarf mistletoe on young true firs in the central Sierra Nevada, California. Res. Pap. PSW-161. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station; 1982. 9 p.

Shaw, C. G., III. Development of dwarf mistletoe in western hemlock regeneration in southeast Alaska. Can. J. For. Res. 12(3): 482-488; 1982.

Shigo, Alex L. Dutch elm disease: a CODIT perspective. In: Proceedings, Dutch elm disease symposium and workshop; 1981 October 5-9; Winnipeg, Manitoba. Sault Ste. Marie, Ontario: Canadian Forestry Service; 1981: 151-168.

Shigo, A. L. Measuring tree decay and vitality with the Shigometer. Arbor Age 3: 17-22; 1983.

Shigo, A. L. Trees resistant to spread of decay associated with wounds. In: Resistance to diseases and pests in forest trees: Proceedings, 3d International workshop on genetics of host-parasite interactions in forestry; 1980 September 14-21; Wageningen, The Netherlands. Wageningen, The Netherlands: Centre for Agricultural Publishing and Documentation; 1982: 103-109.

Shigo, A. L.; Dorn, D.; Lee, H. C. Selections of maple and birch trees with high resistance to spread of decay associated with wounds. In: Proceedings, 28th Northeastern forest tree improvement conference; 1982 July 7-9; Durham, NH. Durham, NH: University of New Hampshire, Insititute of Natural and Environmental Resources; 1983: 110-117.

Shigo, A. L.; Dudzik, K. Chestnut blight: defense reactions. In: Smith, H. Clay; MacDonald, William L., eds. Proceedings, USDA Forest Service American Chestnut Cooperators' meeting; 1982 January 5-7; Morgantown, WV. Morgantown, WV: West Virginia University Books; 1982: 65-67.

Shigo, A. L.; Wilson, C. L. Wounds in peach trees. Plant Dis. 66(10): 895-897; 1982.

Shortle, W. C.; Ostrofsky, A. Decay susceptibility of wood in defoliated fir trees related to changing physical, chemical, and biological properties. Eur. J. For. Pathol. 13: 1-11; 1983.

Sluder, Earl R.; Powers, H. R., Jr. Fusiform rust infection of loblolly and slash pines after artificial inoculation and natural exposure in plantations. Res. Note SE-318. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1982. 5 p.

Snow, G. A. The concept of adaptation for Cronartium quercuum. In: Breeding insect and disease resistant forest trees: Proceedings, Servicewide genetics workshop; 1982 July 19-23; Eugene, OR. Washington, DC: U.S. Department of Agriculture, Forest Service, Timber Management Staff; 1982: 394-402.

Spano, S. D.; Jurgensen, M. F.; Larsen, M. J.; Harvey, A. E, Nitrogen-fixing bacteria in Douglas-fir residue decayed by Fomitopsis pinicola. Plant and Soil 68: 117-123; 1982.

Sutton B. C.; Hodges, C. S., Jr. Eucalyptus microfungi: Cercosperma arnaudii gen. et sp. nov. and Ceratophorum mauiense sp. nov. Nova Hedwigia 35: 793-803; 1981.

Sutton, B. C.; Hodges, C. S., Jr. Hawaiian forest fungi. III. A new species, Gloeocoryneum hawaiiense, on Acacia koa. Mycologia 75(2): 280-284; 1983.

Thies, Walter G. Determination of growth reduction in Douglas-fir infected by Phellinus weirii. For. Sci. 29(2): 305-315; 1983.

Thies, Walter G. Growth loss as a measure of stress in second-growth Douglas-fir infected by Phellinus weirii. In: Jacobi, William R., comp. Proceedings, 30th annual western international forest disease work conference; 1982 September 12-16; Fallen Leaf Lake, CA. Fort Collins, CO: Colorado State University; 1983: 23-28.

Tippett, J. T.; Bogle, A. L.; Shigo, A. L. Response of balsam fir and hemlock roots to injuries. Eur. J. For. Pathol. 12: 357-364; 1983.

Ure, Douglas C.; Maser, Chris. Mycophagy of red-backed voles in Oregon and Washington. Can. J. Zool. 60(12): 3307-3315; 1982.

Wargo, Philip M. Defoliation-induced changes in tree roots favor infection by Armillaria mellea. In: Jacobi, William R., comp. Proceedings, 30th annual western international forest disease work conference; 1982 September 12-16; Fallen Leaf Lake, CA. Fort Collins, CO: Colorado State University; 1983: 29-33.

Wargo, Philip M. Effects and consequences of stress on root physiology. J. Arboric. 9(7): 173-176; 1983.

Wicker, E. F.; Wells, J. M. Intensification and lateral spread of Arceuthobium laricis in a young stand of western larch with stocking control. Can. J. For. Res. 13(2): 314-319; 1983.

Wicker, E. F.; Yokota, S. Fungi associated with blister rust cankers on Pinus strobus and P. pumila in Japan. Trans. Mycol. Soc. Japan. 23: 143-148; 1982.

Wicker, Ed F.; Wells, J. M. Intensification and lateral spread of Arceuthobium laricis in a young stand of western larch with stocking control. Can. J. For. Res. 13(2): 314-319; 1983.

Wingfield, M. J. Transmission of pine wood nematode to cut timber and girdled trees. Plant Dis. 67(1): 35-37; 1983.

Wingfield, M. J.; Blanchette, R. A. The pine wood nematode, Bursaphelenchus xylophilus in Minnesota and Wisconsin: insect associates and transmission studies. In: Jacobi, William R., comp. Proceedings, 30th annual western international forest disease work conference; 1982 September 12-16; Fallen Leaf Lake, CA. Fort Collins, CO: Colorado State University; 1983: 88-103.

Wingfield, M. J.; Blanchette, R. A.; Nicholls, T. H.; Robbins, K. Association of pine wood nematode with stressed trees in Minnesota, Iowa, and Wisconsin. Plant Dis. 66(10): 934-937; 1982.

Wingfield, Michael J. The pinewood nematode in Minnesota, Iowa and Wisconsin. In: Appleby, James E.; Malek, Richard B., eds. Proceedings, 1982 national pine wilt disease workshop; 1982 April 14-15; Rosemont, IL. Urbana, IL: University of Illinois; 1982: 56-65.

Disease Control and Management Strategies

Aho, Paul E. Decay problems in true fir stands. In: Oliver, Chadwick Dearing; Kenady, Reid M., eds. Biology and management of true fir in the Pacific Northwest: Proceedings of the symposium; 1981 February 24-26; Seattle, WA. Contrib. 45. Seattle, WA: University of Washington, College of Forest Resources; Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1983: 203-207.

Aho, Paul E.; Fiddler, Gary; Srago, Mike. Logging damage in thinned, young-growth true fir stands in California and recommendations for prevention. Res. Pap. PNW-304. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1983. 8 p.

Anderson, R. L.; Mistretta, P. A. Management strategies for educing losses caused by fusiform rust, annosus root rot, and littleleaf disease. Agric. Handb. 597. Washington, DC: U.S. Department of Agriculture, Forest Service and Cooperative State Research Service; 1982. 30 p.

Belanger, R. P.; Godbee, J. F.; Miller, T.; Webb, R. S. Salvage cutting in southern pine forests. In: Jones, Earle P., Jr., ed. Proceedings, 2d biennial silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 382-386.

Belanger, Roger P.; Godbee, John F. Salvage cutting: a means of reducing losses from fusiform rust in southern pine plantations. In: Stephenson, Everett H., ed. Proceedings, Workshop on thinning southern pine plantations; 1982 May 24-26; Long Beach, MS. Long Beach, MS: Forestry and Harvesting Training Center; 1982: 44-55.

Berry, Frederick H. Reducing decay losses in high-value hardwoods - a guide for woodland owners and managers. Agric. Handb. 595. Washington, DC: U.S. Department of Agriculture, Forest Service; 1982. 24 p.

Berry, Frederick H.; Mielke, Manfred E. How to reduce decay in high-value hardwood trees. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1983. 6 p.

Bingham, Richard T. Blister rust resistant western white pine for the Inland Empire: the story of the first 25 years of the research and development program. Gen. Tech. Rep. INT-146. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 45 p.

Burton, James D.; Snow, G. A. Triadimefon controls fusiform rust in young slash pine outplantings. Plant Dis. 67(8): 853-854; 1983.

Cannon, W. N., Jr.; DeBald, P. S.; Worley, D. P. Survival of elms - a guide to Dutch elm disease control performance. In: Parks, Bradley O.; Fear, Frank A.; Lambur, Michael T.; Simmons, Gary A., eds. Urban and suburban trees: pest problems, needs, prospects, and solutions; 1982 April 18-20; East Lansing, MI. East Lansing, MI: Michigan State University; 1982: 36-41.

Filer, T. H., Jr.; Cordell, C. E. Nursery diseases of southern hardwoods. For. Insect and Dis. Leafl. 137. Washington, DC: U.S. Department of Agriculture, Forest Service; 1983. 6 p.

Froelich, R. C. Rating sites for fusiform rust hazard and trees for rust resistance. In: Breeding insect and disease resistant forest trees: Proceedings, Servicewide genetics workshop; 1982 July 19-23; Eugene, OR. Washington, DC: U.S. Department of Agriculture, Forest Service, Timber Management Staff; 1982: 381-393.

Gregory, Garold F. Fungicide injection and pruning for control of Dutch elm disease in Greenfield Village, Michigan. In: Parks, Bradley O.; Fear, Frank A.; Lambur, Michael T.; Simmons, Gary A., eds. Urban and suburban trees: pest problems, needs, prospects, and solutions; 1982 April 18-20; East Lansing, MI. East Lansing, MI: Michigan State University; 1982: 49-52.

Griffin, G. J.; Hebard, F. V.; Elkins, J. R. Blight resistance in American chestnut. North. Nut Growers Assoc. 73: 66-73; 1982.

Hare, Robert C.; Snow, Glen A. Control of fusiform rust in slash pine with Bayleton (Triadimefon) seed treatment. Res. Note SO-288. New Orleans, LA: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station; 1983. 4 p.

Hart, John H. Variation in inherent decay resistance of black walnut. In: Proceedings, Black walnut for the future; 1981 August 9-14; West Lafayette, IN. Gen. Tech. Rep. NC-74. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982: 12-17.

Kessler, Kenneth J., Jr. Control of black walnut root rot diseases in nurseries. Res. Pap. NC-229. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 8 p.

Hungerford, Roger D.; Williams, Ralph E.; Marsden, Michael A. Thinning and pruning western white pine: a potential for reducing mortality due to blister rust. Res. Note INT-322. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 7 p.

Kuhlman, E. G. Diseases in stand management of loblolly pine. In: Loblolly pine ecosystem (East Region): Proceedings of the symposium; 1982 December 8-10; Raleigh, NC. Raleigh. NC: North Carolina State University, School of Forest Resources; 1983: 188-197.

Mathiasen, R. L.; Hawksworth, F. G. Dwarf mistletoes on true firs in the Southwest. Arizona For. Notes 18. Flagstaff, AZ: Northern Arizona University; 1983. 12 p.

Mazzone, H. M.; Kluck, J.; Dubois, N. R.; Zerillo, R. Dutch elm disease control with biological agents or their metabolites. In: Proceedings, Dutch elm disease symposium and workshop; 1981 October 5-9; Winnipeg, Manitoba. Sault Ste. Marie, Ontario: Canadian Forestry Service; 1981: 36-45.

Miller, Thomas; Powers, H. R., Jr. Fusiform rust resistance in loblolly pine: artificial inoculation vs. field performance. Plant Dis. 67(1): 33-34; 1983.

Nelson, David L. Phalacropsis dispar (Coleoptera: Phalacridae), an element in the natural control of native pine stem rust fungi in the western United States. Great Basin Nat. 42(3): 369-379; 1982.

Newhouse, Joseph R. Chipping away at chestnut blight. Garden Mag. 7(4): 13-15, 31; 1983.

Nicholls, Thomas H.; Prey, Allen J. Providing information: researchers to practitioners. In: Parks, Bradley O.; Fear, Frank A.; Lambur, Michael T.; Simmons, Gary A., eds. Proceedings, Urban and suburban trees: pest problems, needs, prospects, and solutions; 1982 April 18-20; East Lansing, MI. East Lansing, MI: Michigan State University; 1982: 156-162.

Ostry, M. E.; McNabb, H. S., Jr. Diseases of intensively cultured hybrid poplars: a summary of recent research in the north central region. In: Hansen, Edward A., comp. Intensive plantation culture: 12 years research. Gen. Tech. Rep. NC-91. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1983: 102-109.

Ostry, Michael E.; McNabb, Harold S., Jr. How to identify and prevent injury to poplars caused by Cytospora, Phomopsis, and Dothichiza. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 8 p.

Peterson, Glenn W. Dothistroma needle blight of pines. For. Insect and Dis. Leafl. 143. Washington, DC: U.S. Department of Agriculture, Forest Service; 1982. 6 p.

Peterson, Glenn W.; Hodges, C. S., Jr. Phomopsis blight of junipers. For. Insect and Dis. Leafl. 154. Washington, DC: U.S. Department of Agriculture, Forest Service; 1982. 5 p.

Powers, H. R., Jr. Fighting fusiform rust? Help is on the way. Ga. For. 34(2): 5, 10; 1982.

Powers, H. R., Jr. Using rust resistance in forest management (panel discussion). In: Breeding insect and disease resistant forest trees: Proceedings, Servicewide genetics workshop; 1982 July 19-23; Eugene OR. Washington, DC: U.S. Department of Agriculture, Forest Service, Timber Management Staff; 1982: 477-482.

Powers, H. R., Jr.; Kraus, J. R. Developing fusiform rust-resistant loblolly and slash pines. Plant Dis. 67(2): 187-189; 1983.

Powers, H. R., Jr.; Kraus, J. F. Seedling seed orchards for the production of fusiform rust resistant slash and loblolly pine. In: Breeding insect and disease resistant forest trees: Proceedings, Servicewide genetics workshop; 1982 July 19-23; Eugene, OR. Washington, DC: U.S. Department of Agriculture, Forest Service, Timber Management Staff; 1982: 325-335.

Powers, Harry R., Jr.; Kraus, John R. Research may soon produce planting stock resistant to fusiform rust. For. Farmer 42(1): 6-7; 1982.

Rowan, S. J. Loss of feeder roots lowers seedling survival more than severe black root rot. Tree Plant. Notes 34(1): 18-19; 1983.

Rowan, S. J. Time between application of Bayleton and irrigation not critical for fusiform rust control. Tree Plant. Notes 34(1): 16-17; 1983.

Scharpf, Robert F. Maintaining and protecting long-term forest research experimental plots. In: Shaw, Charles G., III, comp. Proceedings, 29th annual western international forest disease work conference; 1981 September 15-18; Vernon, BC. Juneau, AK: U.S. Department of Agriculture, Forest Service, Alaska Region; [1982]: 68-70.

Scharpf, Robert F. Problems of dwarf mistletoe in advance regeneration of true firs. In: Shaw, Charles G., III, comp. Proceedings, 29th annual western international forest disease work conference; 1981 September 15-18; Vernon, BC. Juneau, AK: U.S. Department of Agriculture, Forest Service, Alaska Region; [1982]: 33-36.

Shigo, A. L. Injections and injury. In: Proceedings, Dutch elm disease symposium and workshop; 1981 October 5-9; Winnipeg, Manitoba. Sault Ste. Marie, Ontario: Canadian Forestry Service; 1981: 483-485.

Shigo, A. L. Tree health. J. Arboric. 8(12): 311-316; 1982.

Shigo, A. L. Trees: treatments and trade-offs. Arbor Age 2(6): 16-18; 1983.

Snow, G. A.; Feduccia, D. P. Bayleton tested against fusiform rust on 3-year old slash pine, 1980. Fungicide and Nematicide Tests 38: 181; 1983.

Thies, W. G.; Nelson, E. E. Survival of Douglas-fir injected with fumigants chloropicrin or methylisothiocyanate. In: Jacobi, William R., comp. Proceedings, 30th annual western international forest disease work conference; 1982 September 12-16; Fallen Leaf Lake, CA. Fort Collins, CO: Colorado State University; 1982: 80-87.

Thies, W. G.; Nelson, E. E. Control of Phellinus weirii in Douglas-fir stumps by the fumigants chloropicrin, allyl alcohol, Vapam, or Vorlex. Can. J. For. Res. 12(3): 528-532; 1982.

Van Alfen, Neal K. Biology and potential for disease control of hypovirulence of Endothia parasitica. Ann. Rev. Phytopathology 20: 349-362; 1982.

Walters, James W.; Hinds, Thomas E.; Johnson, David W.; Beatty, Jerome. Effects of partial cutting on diseases, mortality, and regeneration of Rocky Mountain aspen stands. Res. Pap. RM-240. U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1982. 12 p.

Wiebe, Wayne L.; Peterson, Glenn W.; Wysong, David S. Diplodia tip blight of pines. NebGuide G83-646. Lincoln, NE: University of Nebraska, Cooperative Extension Service; 1983. 2 p.

Wilson, Charles; Shigo, Alex L.; Pusey, P. Lawrence. Long live the peach tree. Am. Fruit Grower, February: 22-24; 1983.

Air Pollution

Alekseyev, V. A.; Dochinger, L. S. Goals and tasks of the Project 02.03-21. In: Alekseyev, V. A.; Martin, J., eds. Interactions between forest ecosystems and pollutants. Part I. Tallinn: Academy of Sciences of the Estonian S.S.P.; 1982: 16-26.

Benoit, L. F.; Skelly, J. M.; Moore, L. D.; Dochinger, L. S. Radial growth reductions of Pinus strobus L. correlated with foliar ozone sensitivity as an indicator of ozone-induced losses in eastern forests. Can. J. For. Res. 12(3): 673-678; 1982.

Benoit, L. F.; Skelly, J. M.; Moore, L. D.; Dochinger, L. S. The influence of ozone on Pinus strobus L. pollen germination. Can. J. For. Res. 13(1): 184-187; 1983.

Dochinger, L. S. Air pollution impacts on forest trees: abiotic and biotic stress factors. In: Alekseyev, V. A.; Martin, J., eds. Interactions between forest ecosystems and pollutants. Part I. Tallinn: Academy of Sciences of the Estonian S.S.P.; 1982: 18-19.

Dochinger, L. S. Air pollution impacts on forest trees: foliar responses. In: Alekseyev, V. A.; Martin, J., eds. Interactions between forest ecosystems and pollutants. Part I. Tallinn: Academy of Sciences of the Estonian S.S.P.; 1982: 48-75.

Dochinger, L. S. The effects of acid precipitation and its gaseous precursors on forest composition, structure, growth, and productivity. National Acid Precipitation Assessment Program: Effects Research Review; 1983; 2-4: 19-23.

Jensen, K. F. Air pollution and vegetative growth of forest trees. In: Alekseyev, V. A.; Martin, J., eds. Interactions between foret ecosystems and pollutants. Part I. Tallinn: Academy of Sciences Estonian S.S.P.; 1982: 116-131.

Jensen, K. F. Growth relationships in silver maple seedlings fumigated with O_3 and SO_2. Can. J. For. Res. 13(2): 298-302; 1983.

Karnosky, D. F.; Steiner, K. C. Provenance and family variation in response of Fraxinus americana and F. pennsylvanica to ozone and sulfur dioxide. Phytopathology 71(8): 804-807; 1981.

Manion, Paul D.; Bragg, Robert J. Effects of acid precipitation on Scleroderris canker disease of red pine. In: Jacobson, Jay S., ed. Proceedings, New York state symposium on atmospheric deposition; 1982 January 7-8; Ithaca, NY. Ithaca, NY: Cornell University, Center for Environmental Research; 1982: 55-56.

McClenahen, J. R. The impact of an urban-industrial area on deciduous forest tree growth. J. Environ. Qual. 12(1): 64-69; 1983.

Miller, P. R.; Taylor, O. C.; Wilhour, R. G. Oxidant air pollution effects on a western coniferous forect [sic] ecosystem. Environ. Res. Brief EPA-600/D-82-276. Corvallis, OR: U.S. Environmental Protection Agency, Environmental Research Laboratory; 1982. 10 p.

Miller, P. R.; Longbotham, G. J.; Longbotham, C. R. Sensitivity of selected western conifers to ozone. Plant Dis. 67(10): 1113-1115; 1983.

Miller, Paul R. Urban tree inventory techniques, moderator's report. In: Lobel, Denice F., ed. Proceedings, 2d California symposium on urban forestry; 1982 January 21-22; Pomona, CA. Berkeley, CA: University of California Cooperative Extension (Forestry); 1983: 29-32.

Noble, Reginald D.; Jensen, Keith F. An apparatus for monitoring CO_2 exchange rates in plants during SO_2 and O_3 fumigation. J. Environ. Exp. Bot. 34(141): 470-475; 1983.

Mycorrhizae

Acsai, Jan; Largent, David L. Ectomycorrhizae of selected conifers growing in sites which support dense growth of bracken fern. Mycotaxon 16(2): 509-518; 1983.

Acsai, Jan; Largent, David L. Mycorrhizae of Arbutus menziesii Pursh. and Artostaphylos [Arctostaphylos] manzanita Parry in northern California. Mycotaxon 16(2): 519-536; 1983.

Acsai, Jan; Largent, David L. Fungi associated with Arbutus menziesii, Arctostaphylos manzanita, and Aractostaphylos uva-ursi in central and northern California. Mycologia 75(3): 544-547; 1983.

Alsheikh, Abdulmagid M.; Trappe, James M. Taxonomy of Phaeangium lefebvrei, a desert truffle eaten by birds. Can. J. Bot. 61(7): 1919-1925; 1983.

Berry, C. R. Survival and growth of pine hybrid seedlings with Pisolithus ectomycorrhizae on coal spoils in Alabama and Tennessee. J. Environ. Qual. 11(4): 709-715; 1982.

Christy, E. Jennifer; Sollins, Phillip; Trappe, James M. First-year survival of Tsuga heterophylla without mycorrhizae and subsequent ectomycorrhizal development on decaying logs and mineral soil. Can. J. Bot. 60(9): 1601-1605; 1982.

Fogel, R.; Hunt, G. Contribution of mycorrhizae and soil fungi to nutrient cycling in a Douglas-fir ecosystem. Can. J. For. Res. 13(2): 219-232; 1983.

Hung, Ling-Ling; Trappe, James M. Growth variation between and within species of ectomycorrhizal fungi in response to pH in vitro. Mycologia 75(2): 234-241; 1983.

Janos, David P.; Trappe, James M. Two new Acaulospora species from tropical America. Mycotaxon 15: 515-522; 1982.

Kropp, Bradley R. Formation of mycorrhizae on nonmycorrhizal western hemlock outplanted on rotten wood and mineral soil. For. Sci. 28(4): 706-710; 1982.

Malajczuk, N.; Cromack, K., Jr. Accumulation of calcium oxalate in the mantle of ectomycorrhizal roots of Pinus radiata and Eucalyptus marginata. New Phytol. 92: 527-531; 1982.

Marx, D. H. Mycorrhizal fungus manipulations and the introduction of exotic tree species. In: Principles of species introduction; 1982 October 4-8; Lourizan, Spain. IUFRO and INIA; 1982: 1-35.

Marx, D. H. Production of ectomycorrhizal fungus inoculum. In: Mycorrhiza research techniques; 1982 May 3-15; Serdang, Malaysia. Provis. Rep. 12. Stockholm, Sweden: International Foundation for Science; 1982: 59-78.

Marx, D. H.; Schenck, N. C. Potential of mycorrhizal symbiosis in agricultural and forest productivity. In: Kommedahl, T.; Williams, P. H., eds. Challenging problems in plant health. St. Paul, MN: The American Phytopathological Society; 1983: 334-347.

Miller, Orson K., Jr. Ectomycorrhizae in the Agaricales and Gasteromycetes. Can. J. Bot. 61(3): 909-916; 1983.

Molina, R. Use of the ectomycorrhizal fungus Laccaria laccata in forestry: I. Consistency between isolates in effective colonization of containerized conifer seedlings. Can. J. For. Res. 12(3): 469-473; 1982.

Molina, R.; Chamard, J. Use of the ectomycorrhizal fungus Laccaria laccata in forestry: II. Effects of fertilizer forms and levels on ectomycorrhizal development and growth of container-grown Douglas-fir and ponderosa pine seedlings. Can. J. For. Res. 13(1): 89-95; 1983.

Molina, Randy; Palmer, J. G. Isolation, maintenance, and pure culture mycorrhizal fungi. In: Schenck, N. C., ed. Methods and principles of mycorrhizal research. St. Paul, MN: American Phytopathological Society; 1983: 115-129.

Powers, H. R., Jr.; Rowan, S. J. Influence of fertilization and ectomycorrhizae on loblolly pine growth and susceptibility to fusiform rust. South. J. Appl. For. 7(2): 101-102; 1983.

Schultz, Richard C.; Kormanik, Paul P. Vesicular-arbuscular mycorrhiza and soil fertility influence mineral concentrations in seedlings of eight hardwood species. Can. J. For. Res. 12: 829-834; 1982.

Shaw, C. G., III; Sidle, R. C. Evaluation of planting sites common to a southeast Alaska clear-cut: II. Available inoculum of the ectomycorrhizal fungus Cenococcum geophilum. Can. J. For. Res. 13(1): 9-11; 1983.

Trappe, J. M. Synoptic keys to the genera and species of zygomycetous mycorrhizal fungi. Phytopathology 72(8): 1102-1108; 1982.

Yawney, William J.; Schultz, Richard C.; Kormanik, Paul P. Soil phosphorus and pH influence the growth of mycorrhizal sweetgum. Soil Sci. Soc. Am. J. 46: 1315-1320; 1982.

Wood Products Organisms

Amburgey, Terry L.; Williams, Lonnie H. Constructing log homes in the South. Log Home Guide for Builders & Buyers 6(1): 24, 35, 38; 1983.

Amburgey, Terry L.; Williams, Lonnie H. Constructing log homes in the South. Info. Ser. No. 22. Mississippi State, MS: Mississippi Forest Products Utilization Laboratory; 1982. 6 p.

Beal, Raymond H.; Howard, Ralph W. Subterranean termite control: results of long term tests. Int. Biodeterior. Bull. 18(1): 13-18; 1982.

Bultman, J. D.; Beal, R. H.; Huffman, J. B.; Parrish, K. K. An investigation of the natural resistance of Melaleuca quinquenervia to tropical marine and terresterial wood-destroying organisms. For. Prod. J. 33(3): 39-43; 1983.

Bultman, J. D.; Beal, R. H.; Jurd, L. An evaluation of some benzyl- and cinnamylphenols as anti-termitics toward Coptotermes formosanus Shiraki in a force-feeding situation. Int. J. Wood Preserv. 2(2): 51-54; 1982.

Burdsall, H. H., Jr.; Larsen, J. J. On the recent proposal to conserve Hyphodontia J. Erikss. against Knieffiella Karst. Mycotaxon 17: 513-516; 1983.

Burdsall, H. H., Jr.; Nakasone, K. K. Species of effused Aphyllophorales (Basidiomycotina) from the southeastern United States. Mycotaxon 17: 253-268; 1983.

Carter, Fairie Lyn. Current research at U.S. Forest Service laboratory in Gulfport, Mississippi. Int. J. Wood Preserv. 2(3): 131-132; 1982.

Carter, Fairie Lyn; Beal, Raymond H. Termite responses to susceptible pine wood treated with antitermitic wood extracts. Int. J. Wood Preserv. 2(4): 185-192; 1982.

Carter, Fairie Lyn; Jones, Susan C.; Mauldin, J. K.; Camargo, Celia R. R. de. Responses of Coptotermes formosanus Shiraki to extracts from five Brazilian hardwoods. Z. Angew. Entomol. 95: 5-14; 1983.

Eslyn, Wallace E. Decay in mine timbers. Part I. Sampling procedures and conditions and descriptions of samples. For. Prod. J. 33(6): 27-30; 1983.

Eslyn, Wallace E. Decay in mine timbers. Part II. Basidiomycetes associated with decay of coal mine timbers. For. Prod. J. 33(7/8): 19-23; 1983.

Eslyn, Wallace E. Impact of biodeterioration on structural use of wood--research needs. In: Proceedings, 1980 how the environment affects lumber design: assessments and recommendations; 1980 May 28-30; Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1982: 68-73.

Eslyn, Wallace E.; Cassens, Daniel L. Laboratory evaluation of selected fungicides for control of sapstain and mold on southern pine lumber. For. Prod. J. 33(4): 65-68; 1983.

Highley T. L. Is extracellular hydrogen peroxide involved in cellulose degradation by brown-rot fungi? Material und Organismen 17(3): 205-214; 1982.

Highley, T. L.; Bar-Lev, S. S.; Kirk, T. K.; Larsen, M. J. Influence of O_2 and CO_2 on wood decay by heartrot and saprot fungi. Phytopathology 73(4): 630-633; 1983.

Highley, Terry L.; Palmer, John G.; Murmanis, Lidija L. Decomposition of cellulose by Poria Placenta: light and electron microscopy study. Holzforschung 37(4): 179-184; 1983.

Highley, Terry L.; Wolter, Karl E. Properties of a carbohydrate-degrading enzyme complex from the brown-rot fungus Poria placenta. Material und Organismen 17(2): 127-134; 1982.

Howard, Ralph W. Effects of methoprene on binary caste groups of Reticulitermes flavipes (Kollar) (Isoptera: Rhinotermitidae). Environ. Entomol. 12(4): 1059-1063; 1983.

Howard, Ralph W.; Jones, Susan C.; Mauldin, Joe K.; Beal, Raymond H. Abundance, distribution, and colony size estimates for Reticulitermes spp. (Isoptera: Rhinotermitidae) in southern Mississippi. Environ. Entomol. 11(6): 1290-1293; 1982.

Howard, Ralph W.; McDaniel, C. A.; Blomquist, Gary J. Chemical mimicry as an integrating mechanism for three termitophiles associated with Reticulitermes virginicus (Banks). Psyche 89(1-2): 157-167; 1982.

Howard, Ralph W.; McDaniel, C. A.; Nelson, Dennis R.; [and others]. Cuticular hydrocarbons of Reticulitermes virginicus (Banks) and their role as potential species- and caste-recognition cues. J. Chem. Ecol. 8(9): 1227-1239; 1982.

Jones, Susan C.; Carter, Fairie Lyn; Mauldin, Joe K. Reticulitermes flavipes (Kollar) (Isoptera: Rhinotermitidae) responses to extracts from six Brazilian woods. Environ. Entomol. 12(2): 458-462; 1983.

La Fage, J. P.; Su, N-Y.; Jones, M. J.; Esenther, G. R. A rapid method for collecting large numbers of subterranean termites from wood. Sociobiology 7(3): 305-309; 1983.

Mauldin, Joe K. Alternatives to termiticides. In: Khasawinah, Abdallah M., ed. Termiticides in building protection: Proceedings of a workshop; 1982 September 22-23; Washington, DC. Chicago, IL: Velsicol Chemical Corp.; 1983: 95-98.

Mauldin, Joe K. Biological aspects of subterranean termite damage. In: Khasawinah, Abdallah M., ed. Termiticides in building protection: Proceedings of a workshop; 1982 September 22-23; Washington, DC. Chicago, IL: Velsicol Chemical Corp.; 1983: 7-9.

Mauldin, Joe K. Status of research and field evaluations. In: Khasawinah, Abdallah M., ed. Termiticides in building protection: Proceedings of a workshop; 1982 September 22-23; Washington, DC. Chicago, IL: Velsicol Chemical Corp.; 1983: 103-106.

Mauldin, Joe K. The Forest Service research program on protection of wood in use. Pest Manage. 2(1): 14, 16, 19; 1983.

Mauldin, Joe K. The economic importance of termites in North America. In: Breed, M. D.; Michener, C. D.; Evans, H. E., eds. The biology of social insects: Proceedings, 9th Congress of the International Union for the study of social insects; 1982 August 9-13; Boulder, CO. Boulder, CO: Westview Press; 1982: 138-141.

Mauldin, Joe K.; Beal, Raymond H.; Jones, Susan C. Subterranean termites, Part II. Pre-registration try-outs of termiticides. Pest Control 50(8): 32, 34; 1982.

Prestwich, Glenn D.; Mauldin, Joe K.; Engstrom, John B.; [and others]. Comparative toxicity of fluorinated lipids and their evaluation as bait-block toxicants for the control of Reticulitermes spp. (Isoptera: Rhinotermitidae). J. Econ. Entomol. 76(4): 690-695; 1983.

Rizk, M. M. A.; Ali, Maher A.; Beal, R. H. The acceptability of certain American woods to Psammotermes hypostoma Desmeux, in the new valley, Egypt. In: Proceedings, 2d international seminar on the management of termites in arid ecosystems; 1982 March; Assiut, Egypt. Assiut, Egypt: Faculty of Agriculture Assiut University Press; Assiut J. Agric. Sci. 13(3): 117-135; 1982.

Scheffer, Theodore C.; Eslyn, Wallace E. Twenty-year test of on-site preservative treatment in exterior wood of buildings. Material und Organismen 17(3): 181-198; 1982.

Williams, Lonnie H. Integrated protection against structural wood-infesting pests. Part I. Pest Manage. 2(1): 12-14; 1983.

Williams, Lonnie H. Research tackles the threat of beetles to the framing industry. Part II. Art Business News 9(8): 3, 6; 1982.

Williams, Lonnie H. Wood moisture levels affect Xyletinus peltatus infestations. Environ. Entomol. 12(1): 135-140; 1983.

Williams, Lonnie H.; Smith, Virgil K. Integrated protection against structural wood-infesting pests: homeowner responsibilities for continued wood protection. Part VII. Pest Manage. 2(7): 24-26; 1983.

Fire and Atmospheric Sciences

Fire Prevention, Hazard Reduction, and Prescribed Burning

Brandel, Kimberley; Omi, Philip N. An evaluation of current prescribed fire reporting practices. In: Proceedings, 7th conference on fire and forest meteorology; 1983 April 25-28; Fort Collins, CO. Boston, MA: American Meteorological Society; 1983: 75-80.

Brown, James K.; DeByle, Norbert V. Developing prescribed burning prescriptions for aspen in the Intermountain West. In: Lotan, James E., ed. Fire: its field effects: Proceedings of the symposium; 1982 October 19-21; Jackson, WY. Missoula, MT: Intermountain Fire Council; Pierre, SD: Rocky Mountain Fire Council; 1983: 29-49.

Freeman, Duane R.; Loomis, Robert M.; Roussopoulos, Peter J. Handbook for predicting slash weight in the Northeast. Gen. Tech. Rep. NC-75. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 23 p.

Jackson, David H.; Flowers, Patrick; Loveless, Robert S., Jr.; Schuster, Ervin G. Predicting prescribed burning costs of wildlife habitat management. Fire Manage. Notes 43(4): 20-22; 1982.

Johansen, Ragnar W.; McNab, William H. Prescribed burning on large land holdings in the South during 1975. Res. Note SE-316. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1982. 4 p.

Loomis, Robert M.; Blank, Richard W. How to estimate weights of northern red oak crowns in a stand. Gen. Tech. Rep. NC-76. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 8 p.

Lotan, James E. Prescribed burning and slash disposal. In: Proceedings, 25th annual Rocky Mountain forest industries conference and equipment show; 1981 May 13; Rapid City, SD. Rapid City, SD: Black Hills Forest Resource Association; 1982: 129-147.

Martin, Robert E. Shrub control by burning before timber harvest. In: Baumgartner, David M., ed. Site preparation and fuels management on steep terrain: Proceedings of a symposium; 1982 February 15-17; Spokane, WA. Pullman, WA: Washington State University, Cooperative Extension; 1982: 35-40.

Martin, Robert E.; Olson, Craig M.; Sleznick, James, Jr. Research/management prescribed burning at Lava Beds National Monument. In: Starkey, Edward E.; Franklin, Jerry F.; Matthews, Jean W., tech. coords. Ecological research in National Parks of the Pacific Northwest: Proceedings, 2d conference on scientific research in the National Parks; 1979 November; San Francisco, CA. Corvallis, OR: Oregon State University, Forest Research Laboratory; 1982: 83-91.

Mobley, Hugh E. Prescribed burning reduces fire hazard, promotes regeneration and wildlife habitat. For. Farmer 41(4): 6-7, 15-16; 1982.

Mobley, Hugh E. Smoke management essential part of prescribed burns in forests. For. Farmer 41(4): 8-9; 1982.

Radloff, David L.; Schopfer, Walter C.; Yancik, Richard F. Slash fire hazard analysis on the Siskiyou National Forest. Environ. Manage. 6(6): 517-526; 1982.

Radloff, David L.; Yancik, Richard F. Decision analysis of prescribed burning. In: Proceedings, 7th conference on fire and forest meteorology; 1983 April 25-28; Fort Collins, CO. Boston, MA: American Meteorological Society; 1983: 85-93.

Ralston, C. W.; McKee, W. H., Jr.; Langdon, O. G.; Harms, W. R. Prescribed burning: uses and effects. In: Loblolly pine ecosystem (East Region): Proceedings of the symposium; 1982 December 8-10; Raleigh, NC. Raleigh, NC: North Carolina State University, School of Forest Resources; 1983: 154-162.

Ryan, Kevin C. Burning for site preparation on steep-slope helicopter-logged clearcuts in northwestern Montana. In: Baumgartner, David M., ed. Site preparation and fuels management on steep terrain: Proceedings of a symposium; 1982 February 15-17; Spokane, WA. Pullman, WA: Washington State University, Cooperative Extension; 1982: 25-33.

Ryan, Kevin C. Evaluating potential tree mortality from prescribed burning. In: Baumgartner, David M., ed. Site preparation and fuel management on steep terrain: Proceedings of a symposium; 1982 February 15-17; Spokane, WA. Pullman, WA: Washington State University, Cooperative Extension; 1982: 167-179.

Van Lear, David H.; Johnson, Von J. Effects of prescribed burning in the Southern Appalachian and Upper Piedmont forests: a review. Bull. 36. Clemson, SC: Clemson University, Department of Forestry, College of Forest and Recreation Resources; 1983. 8 p.

Zimmerman, G. Thomas; Neuenschwander, Leon F. Fuel-load reductions resulting from prescribed burning in grazed and ungrazed Douglas-fir stands. J. Range Manage. 36(3): 346-350; 1983.

Fire Management Methods and Systems

Barney, Richard J. Fireline production: a conceptual model. Res. Pap. INT-310. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 7 p.

Barrager, Stephen M.; Cohan, David; Roussopoulos, Peter J. The economic value of improved fuels and fire behavior information. Res. Pap. RM-239. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1982. 32 p.

Baumgartner, David C.; Gorte, Ross W. New system developed for appraising wildfire effects. Fire Manage. Notes 43(4): 23-26; 1982.

Blank, Richard W. Stereo photos for evaluating jack pine slash fuels. Gen. Tech. Rep. NC-77. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 23 p.

Bratten, Frederick W. Probability model for analyzing fire management alternatives: theory and structure. Gen. Tech. Rep. PSW-66. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station; 1982. 11 p.

Carlton, Donald W.; Pickford, Stewart G. Fuelbed changes with aging of slash from ponderosa pine thinnings. J. For. 80(2): 91-93, 107; 1982.

Countryman, Clive M. Physical characteristics of some northern California brush fuels. Gen. Tech. Rep. PSW-61. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station; 1982. 8 p.

Donoghue, Linda R. Classifying wildfire causes in the USDA Forest Service: problems and alternatives. Res. Note NC-280. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 5 p.

Donoghue, Linda R. The history and reliability of the USDA Forest Service wildfire report. Res. Pap. NC-226. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 15 p.

Flowers, Patrick J.; Hunter, T. Parkin; Mills, Thomas J. Design of a model to simulate large-fire suppression effectiveness. In: Preprint volume: 7th conference on fire and forest meteorology; 1983 April 25-28; Fort Collins, CO. Boston, MA: American Meteorological Society; 1983: 168-173.

Freeman, Duane R. The fuel management training series. Fire Manage. Notes 44(3): 10-13; 1982.

George, C. W. Airtanker retardant coverage slide-charts--Lynch tanked STOL B-26, (1200 gallons) tanker 57. Missoula, MT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station, Northern Forest Fire Laboratory; 1983.

George, C. W. Airtanker retardant coverage slide-charts--central air service tanked DC-4, (2000 gallons) tanker 117. Missoula, MT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station, Northern Forest Fire Laboratory; 1983.

George, Charles W. Airtanker retardant coverage slide-charts--TBM, Inc. F7F (900 gallons) tanker 64. Missoula, MT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station, Northern Forest Fire Laboratory; 1983.

George, Charles W. Airtanker retardant coverage slide-charts--Black Hills/Rosenbalm tanked P2V-5 (2450 gallons) tanker 06, 07. Missoula, MT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station, Northern Forest Fire Laboratory; 1983.

George, Charles W. Airtanker retardant coverage slide-charts--ARDCO/WAIG tanked DC-4 (2000 gallons) tanker 119, 165, 113, 160 (w.o. trial doors). Missoula, MT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station, Northern Forest Fire Laboratory; 1983.

George, Charles W. Airtanker retardant coverage slide-charts--Evergreen P2V-5 (2450 gallons) tanker 141, 145. Missoula, MT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station, Northern Forest Fire Laboratory; 1983.

George, Charles W. Measurements of airtanker drop conditions during firefighting operations. Res. Pap. INT-299. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1982. 10 p.

George, Charles W.; Blakely, Alymer D.; Johnson, G. M.; Hightower, K. E. Supplement to WAIG Aircraft, Inc., DC-4 (tanker 165) trail system. Looseleaf insert to Gen. Tech. Rep. INT-27. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 13 p.

George, Charles W.; Blakely, Alymer D.; Johnson, G. M.; Hightower, K. E. Airtanker performance guide for Evergreen P2V-5 aircraft (tanker 145, 2450-gallon load). Performance Guide PG-29. Looseleaf insert to Gen. Tech. Rep. INT-27. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 17 p.

George, Charles W.; Blakely, Alymer D.; Johnson, G. M.; Hightower, K. E. Airtanker performance guide for TBM, Inc., F7F aircraft (tanker 64, 900-gallon load). Performance Guide PG-31. Looseleaf insert to Gen. Tech. Rep. INT-27. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 12 p.

Gonzalez-Caban, Armando. Economic cost of initial attack and large fire suppression. Gen. Tech. Rep. PSW-68. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station; 1983. 7 p.

Green, Lisle R.; Newell, Leonard A. Using goats to control brush regrowth on fuelbreaks. Gen. Tech. Rep. PSW-59. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station; 1982. 13 p.

Greulich, Francis E.; O'Regan, William G. Optimum use of air tankers in initial attack: selection, basing, and transfer rules. Res. Pap. PSW-163. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station; 1982. 8 p.

Haven, Lisa; Hunter, T. Parkin; Storey, Theodore G. Production rates for crews using hand tools on firelines. Gen. Tech. Rep. PSW-62. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station; 1982. 8 p.

Hillhouse, Margaret L.; Potts, Donald F. Duff reduction in site preparation. In: Baumgartner, David M., ed. Site preparation and fuels management on steep terrain: Proceedings of a symposium; 1982 February 15-17; Spokane, WA. Pullman, WA: Washington State University, Cooperative Extension; 1982: 67-73.

Kilgore, Bruce M. Fire management programs in National Parks and Wilderness. In: Lotan, James E., ed. Fire: its field effects: Proceedings of the symposium; 1982 October 19-21; Jackson, WY. Missoula, MT: Intermountain Fire Council; Pierre, SD: Rocky Mountain Fire Council; 1983: 61-91.

Main, William A.; Straub, Robert J.; Paananen, Donna M. FIREFAMILY: fire planning with historic weather data. Gen. Tech. Rep. NC-73. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 31 p.

Maxwell, Wayne G.; Ward, Franklin R. Fuels and fire in land-management planning: Part 1. Forest-fuel classification. Gen. Tech. Rep. PNW-131. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1981. 12 p.

Mills, Thomas J.; Bratten, Frederick W. FEES: design of a Fire Economics Evaluation System. Gen. Tech. Rep. PSW-65. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station; 1982. 26 p.

Mills, Thomas J.; Flowers, Patrick J. Completeness of model specification: an illustration with fire-induced timber net value change. In: Preprint volume: 7th conference on fire and forest meteorology; 1983 April 25-28; Fort Collins, CO. Boston, MA: American Meteorological Society; 1983: 153-158.

Norum,Rodney A. Predicting wildfire behavior in black spruce forests in Alaska. Res. Note PNW-401. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1982. 10 p.

Radloff, David L. Fire hazard effects of timber harvesting. In: Timber harvesting in the Central Rockies: problems and opportunities: SAF regional technical conference; 1983 January 4-6; Fort Collins, CO. Publ. XCM-870. Fort Collins, CO: Colorado State University, Cooperative Extension Service; 1983: 314-325.

Salazar, Lucy Anne. Remote sensing techniques aid in preattack planning for fire management. Res. Pap. PSW-162. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station; 1982. 19 p.

Seaver, David A.; Roussopoulos, Peter J.; Freeling, Anthony N. S. The escaped fire situation: a decision analysis approach. Res. Pap. RM-244. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1983. 12 p.

Steele, Robert W.; Barney, Richard J. Bulldozers in fire management: current designs and uses. Res. Note INT-328. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 4 p.

Van Meter, Wayne P. Using rheology to estimate short-term retardant droplet sizes. Res. Note INT-327. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 13 p.

Forest Fire Science

Albini, F. A. Response of free-burning fires to nonsteady wind. Combustion Sci. Technol. 29: 225-241; 1982.

Albini, F. A. The variability of wind-aided free-burning fires. Combustion Sci. Technol. 31: 303-311; 1982.

Albini, Frank A. Potential spotting distance from wind-driven surface fires. Res. Pap. INT-309. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 27 p.

Albini, F. A. Transport of firebrands by line thermals. Combustion Sci. Technol. 32: 277-288; 1983.

Albini, Frank A. Wind flow into a model forest reexamined. In: Proceedings, 7th conference on fire and forest meteorology; 1983 April 25-28; Fort Collins, CO. Boston, MA: American Meteorological Society; 1983: 115-122.

Anderson, Hal E. Predicting wind-driven wild land fire size and shape. Res. Pap. INT-305. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 26 p.

Andrews, Patricia L. A system for predicting the behavior of forest and range fires. In: Proceedings, Society for Computer Simulation conference on computer simulation and emergency planning; 1983 January 27-29; San Diego, CA. LaJolla, CA: Simulation Councils, Inc.; 1983: 75-78.

Blakely, Aylmer D. Monoammonium phosphate: effect on flammability of excelsior and pine needles. Res. Pap. INT-313. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 17 p.

Clements, Hubert B.; Ward, Darold E.; Adkins, Carl W. Measuring fire behavior with photography. Photogramm. Eng. and Remote Sensing 49(2): 213-217; 1983.

Johnson, Von J. The dilemma of flame length and intensity. Fire Manage. Notes 43(4): 3-7; 1982.

Loomis, Robert M. Seasonal variations in ash content of some Michigan forest floor fuels. Res. Note NC-279. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 3 p.

Main, William A.; Haines, Donald A. Determining appropriate fuel models from field observations and a fire characteristics chart. In: Proceedings, 7th conference on fire and forest meteorology; 1983 April 25-28; Fort Collins, CO. Boston, MA: American Meteorological Society; 1983: 47-52.

Marsden, Michael A. Application of the multivariate logistic function in forestry research. In: Proceedings, 7th conference on fire and forest meteorology; 1983 April 25-28; Fort Collins, CO. Boston, MA: American Meteorological Society; 1983: 163-167.

McMahon, Charles K. Characteristics of forest fuels, fire and emissions. In: 76th annual meeting of Air Pollution Control Association; 1983 June 19-24; Atlanta, GA. 83-45.1. Pittsburgh, PA: Air Pollution Control Association; 1983: 24 p.

Nelson, Ralph M., Jr. A model for sorption of water vapor by cellulosic materials. Wood and Fiber Sci. 15(1): 8-22; 1983.

Paysen, Timothy E.; Derby, Jeanine A.; Conrad, C. Eugene. A vegetation classification system for use in California: its conceptual basis. Gen. Tech. Rep. PSW-63. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station; 1982. 14 p.

Potts, Donald F.; Zuuring, Hans; Hillhouse, Margaret. Spatial analysis of duff moisture and structure variability. In: Proceedings, 7th conference on fire and forest meteorology; 1983 April 25-28; Fort Collins, CO. Boston, MA: American Meteorological Society; 1983: 18-21.

Rothermel, Richard C. How to predict the spread and intensity of forest and range fires. Gen. Tech. Rep. INT-143. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 161 p.

Rothermel, Richard C.; Rinehart, George C. Field procedures for verification and adjustment of fire behavior predictions. Gen. Tech. Rep. INT-142. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 25 p.

Ryan, Kevin C. Evaluation of a passive flame-height sensor to estimate forest fire intensity. Res. Note PNW-390. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1981. 13 p.

Ryan, Kevin C. Techniques for assessing fire damage to trees. In: Lotan, James E., ed. Fire: its field effects: Proceedings of the symposium; 1982 October 19-21; Jackson, WY. Missoula, MT: Intermountain Fire Council; Pierre, SD: Rocky Mountain Fire Council; 1983: 1-11.

Simard, Albert J.; Deacon, Arthur G.; Adams, Kenneth B. Nondirectional sampling of wildland fire spread. Fire Technol. 18(3): 221-228; 1982.

Susott, Ronald A. Differential scanning calorimetry of forest fuels. For. Sci. 28(4): 839-851; 1982.

Ecological Relations

Arno, Stephen F.; Gruell, George E. Fire history at the forest-grassland ecotone in southwestern Montana. J. Range Manage. 36(3): 332-336; 1983.

Arno, Stephen F.; Petersen, Terry D. Variation in estimates of fire intervals: a closer look at fire history on the Bitterroot National Forest. Res. Pap. INT-301. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 8 p.

Arno, Stephen F.; Simmerman, Dennis G. Succession after cutting and fire treatments on forest habitat types in western Montana. In: Baumgartner, David M., ed. Site preparation and fuels management on steep terrain: Proceedings of a symposium; 1982 February 15-17; Spokane, WA. Pullman, WA: Washington State University, Cooperative Extension; 1982: 113-117.

Barney, R. J.; Stocks, B. J. Fire frequencies during the suppression period. In: Wein, Ross W.; MacLean, David A., eds. The role of fire in northern circumpolar ecosystems. New York: John Wiley & Sons Ltd.; 1983: 45-62.

Barrett, Stephen W.; Arno, Stephen F. Indian fires as an ecological influence in the Northern Rockies. J. For. 80(10): 647-651; 1982.

Crane, Marilyn F. Fire ecology of forest habitat types. In: Lotan, James E., ed. Fire: its field effects: Proceedings of the symposium; 1982 October 19-21; Jackson, WY. Missoula, MT: Intermountain Fire Council; Pierre, SD: Rocky Mountain Fire Council; 1983: 13-22.

Crane, M. F.; Habeck, J. R. Vegetative responses after a severe wildfire on a Douglas-fir/ninebark habitat type. In: Baumgartner, David M., ed. Site preparation and fuels managment on steep terrain: Proceedings of a symposium; 1982 February 15-17; Spokane, WA. Pullman, WA: Washington State University, Cooperative Extension; 1982: 133-138.

Dieterich, John H. Fire history of southwestern mixed conifer: a case study. For. Ecol. and Manage. 6: 13-31; 1983.

Dunn, Paul H.; Reynolds, Don R.; Poth, Mark; Barro, Susan C. Effect of fire on soil microflora in the tropics. Trop. Ecol. 1982.

Fischer, William C.; Clayton, Bruce D. Fire ecology of Montana forest habitat types east of the Continental Divide. Gen. Tech. Rep. INT-141. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 83 p.

Fischer, William C.; McClelland, B. Riley. A cavity-nesting bird bibliography--including related titles on forest snags, fire, insects, disease, and decay. Gen. Tech. Rep. INT-140. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 79 p.

Guyette, Richard; McGinnes, E. A., Jr. Fire history of an Ozark glade in Missouri. Trans. Missouri Acad. Sci. 16: 85-93; 1982.

Hemstrom, Miles A. Fire in the forests of Mount Rainier National Park. In: Starkey, Edward E.; Franklin, Jerry F.; Matthews, Jean W., tech. coords. Ecological research in National Parks of the Pacific Northwest: Proceedings, 2d conference on scientific research in the National Parks; 1979 November; San Francisco, CA. Corvallis, OR: Oregon State University, Forest Research Laboratory; 1982: 121-126.

Johnson, Von J. Ambivalent effects of fire in eastern broadleaf forests. In: America's hardwood forest--opportunities unlimited: Proceedings, 1982 convention of the Society of American Foresters; 1982 September 19-22; Cincinnati, OH. SAF 83-04. Bethesda, MD: Society of American Foresters; 1982: 153-156.

Little, S. Varying effects of fires in the New Jersey Pine Barrens. In: Good, Ralph, ed. Ecological solutions to environmental management concerns in the Pinelands National Reserve: Proceedings of a conference; 1982 April 18-21; Camden/Cherry Hill, NJ. Brunswick, NJ: Rutgers University; 1982: 11-16.

Lotan, James E., ed. Fire: its field effects: Proceedings of the symposium; 1982 October 19-21; Jackson, WY. Missoula, MT: Intermountain Fire Council; Pierre, SD: Rocky Mountain Fire Council; 1983. 113 p.

Lotan, James E.; Perry, David A. Ecology and regeneration of lodgepole pine. Agric. Handb. 606. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 51 p.

Marsden, Michael A. Modeling the effect of wildfire frequency on forest structure and succession in the Northern Rocky Mountains. J. Environ. Manage. 16: 45-62; 1983.

Merrill, E. H.; Mayland, H. F.; Peek, J. M. Shrub responses after fire in an Idaho ponderosa pine community. J. Wildl. Manage. 46(2): 496-502; 1982.

Noste, Nonan V. Vegetation response to spring and fall burning for wildlife habitat improvement. In: Baumgartner, David N., ed. Site preparation and fuels management on steep terrain: Proceedings of a symposium; 1982 February 15-17; Spokane, WA. Pullman, WA: Washington State University, Cooperative Extension; 1982: 125-132.

Olson, Craig M.; Johnson, Arlen H.; Martin, Robert E. Effects of prescribed fires on vegetation in Lava Beds National Monument. In: Starkey, Edward E.; Franklin, Jerry F.; Matthews, Jean W., tech. coords. Ecological research in National Parks of the Pacific Northwest: Proceedings, 2d conference on scientific research in the National Parks; 1979 November; San Francisco, CA. Corvallis, OR: Oregon State University, Forest Research Laboratory; 1982: 92-100.

Ottmar, R. D.; Sandberg, D. V. Estimating 1000-hour fuel moistures in the Douglas-fir subregion. In: Proceedings, 7th conference on fire and forest meteorology; 1983 April 25-28; Fort Collins, CO. Boston, MA: American Meteorological Society; 1983: 22-26.

Ottmar, Roger D. An instrument for measuring duration of precipitation. Fire Manage. Notes 44(1): 9-13; 1983.

Simard, Albert J.; Blank, Richard W. Fire history of a Michigan jack pine forest. Michigan Acad. 15(1): 59-71; 1982.

Tiagwad, Tamara E.; Olson, Craig, M.; Martin, Robert E. Single-year response of breeding bird populations to fire in a curlleaf mountain mahogany-big sagebrush community. In: Starkey, Edward E.; Franklin, Jerry F.; Matthews, Jean W., tech. coords. Ecological research in National Parks of the Pacific Northwest: Proceedings, 2d conference on scientific research in the National Parks; 1979 November; San Francisco, CA. Corvallis, OR: Oregon State University, Forest Research Laboratory; 1982: 101-110.

Viereck, L. A. The effects of fire in black spruce ecosystems of Alaska and northern Canada. In: Wein, Ross W.; MacLean, David A., eds. The role of fire in circumpolar ecosystems: Proceedings of a conference; 1979 October; Fredericton, NB. Rexdale, ON: John Wiley & Sons Ltd.; 1983: 201-220. (A Scientific Committee on Problems of the Environment (SCOPE), Chapter 2).

Viereck, Leslie A. Effects of fire and firelines on active layer thickness and soil temperatures in interior Alaska. In: Proceedings, 4th Canadian permafrost conference; 1981 March 2-6; Calgary, AB. Ottawa, ON: National Research Council of Canada; 1982: 123-135.

Weather Modification and Weather Effects

Bergen, James D. Numerical simulation of dilute aeolian saltation: some preliminary results. In: Preprint volume of extended abstracts: 6th conference on biometeorology and aerobiology; 1983 April 25; and 16th conference on agriculture and forest meteorology; 1983 April 26-28; Fort Collins, CO. Boston, MA: American Meteorological Society; 1983; 237-240.

Deeming, John E. Reflections on the development, application, and future of the National Fire-Danger Rating System. In: Proceedings, 7th conference on fire and forest meteorology; 1983 April 25-28; Fort Collins, CO. Boston, MA: American Meteorological Society; 1983: 139-146.

Dieterich, David L.; Fox, Douglas G.; Wood, Martha C.; Marlatt, William E. Draft air quality technical report for the federal oil shale management program. Lakewood, CO: U.S. Department of Interior, Bureau of Land Management, Division of EIS Services; February 1983. 297 p.

Dieterich, David L.; Fox, Douglas G.; Wood, Martha C.; Marlatt, William E. Revised air quality impact assessment for the supplemental environmental impact statement for the prototype oil shale leasing program. Denver, CO: Department of Interior, Bureau of Land Management, Colorado State Office; December 1982. 314 p. Tech. Rep.

Finklin, Arnold I. Summarizing weather and climatic data--a guide for wildland managers. Gen. Tech. Rep. INT-148. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 43 p.

Fischer, William C.; Bevins, Collin D.; Johnston, Cameron M. Why programs RxWTHR and RxBURN won't run: a checklist of common errors. Fire Manage. Notes 43(4): 18-19; 1982.

Fosberg, Michael A.; Lanham, Lucy M. Above-canopy dispersion rates in nighttime downslope flow. In: Preprint volume: 7th conference on fire and forest meteorology; 1983 April 25-28; Fort Collins, CO. Boston, MA: American Meteorological Society; 1983: 105-110.

Fox, D. G.; Ross, D. G.; Dietrich, D.; Marlatt, W. On modeling dispersion in complex terrain - application of TAPAS/CITPUFF/WINDS. In: Proceedings, 6th world congress on air quality; 1983 May 16-20; Paris, France. Paris, France: International Union of Air Pollution Prevention Associations; 1983: 231-238.

Frost, John S.; Haines, Donald A. Fire-weather station maintenance--how good is it? Fire Manage. Notes 43(3): 14-17; 1982.

Fujioka, Francis M. Weighted interpolation as an interpretive tool--implications for meteorological network design. In: Preprint volume: 7th conference on fire and forest meteorology; 1983 April 25-28; Fort Collins, CO. Boston, MA: American Meteorological Society; 1983; 1-6.

Fuquay, Donald M. Living with lightning. Fire Manage. Notes. 44(1): 18-23; 1983.

Fuquay, Donald M. Positive cloud-to-ground lightning in summer thunderstorms. J. Geophysical Res. 87(C9): 7131-7140; 1982.

Furman, R. William. Archiving remote automatic weather station data. Fire Manage. Notes 44(3): 3-5; 1982.

Harrington, Michael G. Climate class adjustments improve accuracy of predicted fuel moisture stick values. Res. Note RM-431. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1982. 4 p.

Johansen, Ragnar W.; Phernetton, Ronald A. Smoke management on the Okefenokee National Wildlife Refuge. South. J. Appl. For. 6(4): 200-205; 1982.

Latham, Don. LLAFFS--a lightning-locating and fire-forecasting system. Res. Pap. INT-315. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 44 p.

Lavdas, Leonidas G. A sampling of present and projected meteorological smoke management products. In: Proceedings, 7th conference of fire and forest meteorology; 1983 April 25-28; Fort Collins, CO. Boston, MA: American Meteorological Society; 1983: 94-95.

Lavdas, Leonidas G. Rural dispersion climatology of the contiguous United States. In: 76th annual meeting of the Air Pollution Control Association; 1983 June 19-24; Atlanta, GA. Pittsburgh, PA: Air Pollution Control Association; 1983: [Not paginated]. Paper 83-45.5.

McCutchan, Morris H. Comparing temperature and humidity on a mountain slope and in the free air nearby. Mon. Weather Rev. 111(4): 836-845; 1983.

McCutchan, Morris H.; Fox, Douglas G.; Furman, R. William. San Antonio Mountain experiment (SAMEX). Am. Meteor. Soc. Bull. 63(10): 1123-1131; 1982.

Miller, David R.; Bergen, James D.; Neuroth, G. Cold air drainage in a narrow forested valley. For. Sci. 29(2): 357-370; 1983 .

Paananen, Donna M.; Main, William A. New ways to use fire-danger rating now available. Fire Manage. Notes 43(2): 16-17; 1982.

Ryan, Bill C. Comparisons of estimates of surface wind in mountainous terrain based on upper-level flow with estimates using nearby surface observations. In: Preprint volume: 7th conference on fire and forest meteorology; 1983 April 25-28; Fort Collins, CO. Boston, MA: American Meteorological Society; 1983; 13-17.

Sadeh, Willy Z.; Baron, Yehuda; Fox, Douglas G. Estimating the power-law index for wind. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1983. 38 p. Available from: NTIS, Springfield, VA; PB 83152488.

Sadeh, Willy Z.; Cionco, Ronald M.; Fox, Douglas G. Working meeting on meteorological and diffusion characteristics in wooded and urban domains in complex terrain. ASL-CR-83-8035-1. White Sands Missile Range, NM: U.S. Army Electronics Research Development Command, Atmospheric Sciences Laboratory; 1983 January; 25 p.

Sandberg, D. V.; Ottmar, R. D. Slash burning and fuel consumption in the Douglas-fir subregion. In: Proceedings, 7th conference on fire and forest meteorology; 1983 April 25-28; Fort Collins, CO. Boston, MA: American Meteorological Society; 1983: 90-93.

Sandberg, David V. Emission reduction for prescribed burning. In: Proceedings, 76th annual meeting of the Air Pollution Control Association; 1983 June 19-24; Atlanta, GA. Pittsburg, PA: Air Pollution Control Association; 1983: 14 p. Paper 83-45.3.

Simard, A. J.; Main, W. A. Comparing methods of predicting jack pine slash moisture. Can. J. For. Res. 12(4): 793-802; 1982.

Simard, A.; Blank, R.; Eenigenburg, J. Predicting wood and foliage moisture in jack pine slash. In: Proceedings, 7th conference on fire and forest meteorology; 1983 April 25-28; Fort Collins, CO. Boston, MA: American Meteorological Society; 1983: 27-28.

Taylor, Bernadine; Thomas, Lola. Extreme fire weather under prefrontal--post-Santa Ana conditions. Natl. Weather Dig. 8(2): 11-21; 1983.

Ward, Darold E. Source-strength modeling of particulate matter emissions from forest fires. In: Proceedings, 76th annual meeting of the Air Pollution Control Association; 1983 June 19-24; Atlanta, GA. Pittsburg, PA: Air Pollution Control Association; 1983: 14 p. Paper 83-45.2.

Wooldridge, Gene; Thorson, P. A.; Furman, R. W. Airflow patterns and momentum flux profiles around an isolated mountain. In: Proceedings, 17th international conference for alpine meteorology; 1982 September 21-25; Berchtesgaden, German Federal Republic; 1982: Preprint p. 140-142.

Timber Management

Forest Biology

Alaback, Paul B. Dynamics of understory biomass in Sitka spruce-western hemlock forests of southeast Alaska. Ecology 63(6): 1932-1948; 1982.

Alaback, Paul B. Forest community structural changes during a secondary succession in southeast Alaska. In: Means, Joseph E., ed. Forest succession and stand development research in the northwest: Proceedings of a symposium; 1981 March 26; Corvallis, OR. Corvallis, OR: Forest Research Laboratory, Oregon State University; 1982: 70-79.

Alban, David H. Effects of nutrient accumulation by aspen, spruce, and pine on soil properties. Soil Sci. Soc. Am. J. 46(4): 853-861; 1982.

Bailey, D. K.; Hawksworth, F. G. Pinaceae of the Chihuahuan Desert Region. Phytologia 53: 226-234; 1983.

Bartos, Dale L.; Mueggler, Walter F. Early succession following clearcutting of aspen communities in northern Utah. J. Range Manage. 35(6): 764-768; 1982.

Bartos, Dale L.; Ward, Frederick R.; Innis, George S. Aspen succession in the Intermountain West: a deterministic model. Gen. Tech. Rep. INT-153. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 60 p.

Blanchard, Robert O.; Shortle, Walter C.; Davis, W. Mechanism relating cambial electrical resistance to periodic growth rate of balsam fir. Can. J. For. Res. 13(2): 472-480; 1983.

Blumenthal, Susan G.; Boyer, Donald E. Organic amendments in forest nursery management in the Pacific Northwest. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1982. 73 p. Adm. Rep.

Bonner, F. T. Determining optimum germination temperatures for Quercus on a two-way thermogradient plate. In: Thielges, Bart A., ed. Proceedings, 7th North American forest biology workshop; 1982 July 26-28; Lexington, KY. Lexington, KY: University of Kentucky, Department of Forestry; 1982: 255-261.

Bonner, F. T. Storage principles for tropical tree seed. In: Reunion Sobre Problemas en Simillas Forestales Tropicales; 1980 October; San Felipe-Bacalar, Quintana Roo, Mexico: Inst. Nacional de Invest. Forestales Publ. Esp. No. 35; 1981: 213-221.

Bonner, F. T. The effect of damaged radicles of presprouted red oak acorns on seedling production. Tree Plant. Notes 33(4): 13-15; 1982.

Brown, David E., ed. Biotic communities of the American Southwest-United States and Mexico. Desert Plants 4(1-4): 1982; 342 p.

Brown, Sandra; Lugo, Ariel E. A comparison of structural and functional characteristics of saltwater and freshwater forested wetlands. In: Gopal, B.; Turner, R. E.; Wetzer, R. G.; Whigham, D. F., eds. Wetlands: ecology and management. Jaipur, India: National Institute of Ecology, and International Scientific Publications; 1982: 109-130.

Brown, Sandra; Lugo, Ariel E. The storage and production of organic matter in tropical forests and their role in the global carbon cycle. Biotropica 14(3): 161-187; 1982.

Brown, Sandra; Peterson, David L. Structural characteristics and biomass production of two Illinois bottomland forests. Am. Midl. Nat. 110(1): 107-117; 1983.

Calmes, Mary A.; Zasada, John C. Some reproductive traits of four shrub species in the black spruce forest type of Alaska. Can. Field-Nat. 96(1): 35-40; 1982.

Campbell, Robert K.; Ritland, Stanley M. Regulation of seed-germination timing by moist chilling in western hemlock. New Phytol. 92: 173-182; 1982.

Copeland, William N.; Greene, Sarah E. Stinking Lake Research Natural Area, Suppl. No. 12. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1982. 21 p.

Cotrufo, C. Xylem nitrogen as a possible diagnostic nitrogen test for loblolly pine. Can. J. For. Res. 13(2): 355-357; 1983.

Del Moral, Roger. Initial recovery of subalpine vegetation on Mount St. Helens, Washington. Am. Midl. Nat. 109(1): 72-80; 1983.

Fay, S.; Leak, W. B. Ecological land classification: practice and research on the White Mountain National Forest. In: Brann, Thomas B.; House, Louis O., IV; Land, H. Gyde, eds. Proceedings, National workshop on in-place resource inventories: principles and practices; 1981 August 9-14; Orono, ME. SAF 82-02. Bethesda, MD: Society of American Foresters; 1982: 654-658.

Feret, Peter P. Effect of moisture stress on the growth of Pinus ponderosa Dougl. ex. Laws seedlings in relation to their field performance. Plant and Soil 69(2): 177-186; 1982.

Fiscus, Edwin L.; Klute, Arnold; Kaufmann, Merrill R. An interpretation of some whole plant water transport phenomena. Plant Physiol. 71: 810-817; 1983.

Fisher, David G.; Larson, Philip R. Structure of leaf/branch gap parenchyma and associated vascular tissues in Populus deltoides. Bot. Gaz. 144(1): 73-85; 1983.

Franklin, Jerry F. Ecology of noble fir. In: Oliver, Chadwick Dearing; Kenady, Reid M., eds. Biology and management of true fir in the Pacific Northwest: Proceedings of the symposium; 1981 February 24-26; Seattle, WA. Contrib. 45. Seattle, WA: University of Washington, College of Forest Resources; Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1983: 59-69.

Franklin, Jerry F. Ecosystem studies in the Hoh River drainage, Olympic National Park. In: Starkey, Edward E.; Franklin, Jerry F.; Matthews, Jean W., tech. coords. Ecological research in National Parks of the Pacific Northwest: Proceedings, 2d conference on scientific research in the National Parks; 1979 November; San Francisco, CA. Corvallis, OR: Oregon State University, Forest Research Laboratory; 1982: 1-8.

Franklin, Jerry F. The true fir resource. In: Oliver, Chadwick Dearing; Kenady, Reid M., eds. Biology and management of true fir in the Pacific Northwest: Proceedings of the symposium; 1981 February 24-26; Seattle, WA. Contrib. 45. Seattle, WA: University of Washington, College of Forest Resources; Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1983: 1-6.

Franklin, Jerry F.; Swanson, Frederick J.; Sedell, James R. Relationships within the valley floor ecosystems in western Olympic National Park: a summary. In: Starkey, Edward E.; Franklin, Jerry F.; Matthews, Jean W., tech. coords. Ecological research in National Parks of the Pacific Northwest: Proceedings, 2d conference on scientific research in the National Parks; 1979 November; San Francisco, CA. Corvallis, OR: Oregon State University, Forest Research Laboratory; 1982: 43-45.

Gessel, S. P.; Klock, G. O. Mineral nutrition of true fir. In: Oliver, Chadwick Dearing; Kenady, Reid M., eds. Biology and management of true fir in the Pacific Northwest: Proceedings of the symposium; 1981 February 24-26; Seattle, WA. Contrib. 45. Seattle, WA: University of Washington, College of Forest Resources; Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1983: 77-83.

Goffinet, Martin C.; Larson, Philip R. Lamina abortion in terminal bud-scale leaves of Populus deltoides during dormancy induction. Bot. Gaz. 143(3): 331-340; 1982.

Gottfried, Gerald J.; Ffolliott, Peter F. Annual needle and leaf all in an Arizona mixed conifer stand. Res. Note RM-428. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1983. 4 p.

Graham, Robin Lambert; Cromack, Kermit, Jr. Mass, nutrient content, and decay rate of dead boles in rain forests of Olympic National Park. Can. J. For. Res. 12(2): 511-521; 1982.

Graham, Robin Lee Lambert. The biomass, coverage and decay rates of dead boles in terrace forests, South Fork Hoh River, Olympic National Park. In: Starkey, Edward E.; Franklin, Jerry F.; Matthews, Jean W., tech. coords. Ecological research in National Parks of the Pacific Northwest: Proceedings, 2d conference on scientific research in the National Parks; 1979 November; San Francisco, CA. Corvallis, OR: Oregon State University, Forest Research Laboratory; 1982: 15-21.

Greene, Sarah E. Indian Creek Research Natural Area, Suppl. No. 14. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1983. 15 p.

Greene, Sarah E. Neskowin Crest Research Natural Area, Suppl. No. 13. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1982. 17 p.

Halpern, Charles B.; Harmon, Mark E. Early plant succession on the Muddy River mudflow, Mount St. Helens, Washington. Am. Midl. Nat. 110(1): 97-106; 1983.

Hanks, Jess P.; Fitzhugh, E. Lee; Hanks, Sharon R. A habitat type classification system for ponderosa pine forests of northern Arizona. Gen. Tech. Rep. RM-97. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1983. 22 p.

Harniss, Roy O.; Harper, Kimball R. Tree dynamics in seral and stable aspen stands of central Utah. Res. Pap. INT-297. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 7 p.

Heidmann, L. J. An initial determination of the "lifting window" for seedlings raised at Albuquerque, New Mexico. In: Proceedings, 1982 conference of western forestry nursery council; 1982 August 10-12; Medford, OR. Ashland, OR: Southern Oregon State College; 1983: 77-84.

Hoffman, George R.; Alexander, Robert R. Forest vegetation of the White River national Forest in western Colorado: a habitat type classification. Res. Pap. RM-249. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1983. 36 p.

Hollis, Charles A.; Smith, Joel E.; Fisher, Richard F. Allelopathic effects of common understory species on germination and growth of southern pines. For. Sci. 28(3): 509-515; 1982.

Hopper, G. M.; Vozzo, J. A. Auxin, gibberellic acid and abscisic acid in water oak embryos. In: Thielges, Bart A., ed. Proceedings, 7th North American forest biology worksnop; 1982 July 26-28; Lexington, KY. Lexington, KY: University of Kentucky, Department of Forestry; 1982: 327-331.

Hoyle, M.C. Automatic mat watering for containerized hardwood seedlings. In: Thielges, Bart A., ed. Proceedings, 7th North American forest biology workshop; 1982 July 26-28; Lexington, KY. Lexington, KY: University of Kentucky, Department of Forestry; 1982: 281-286.

Hoyle, M.C. Hydroponic rooting of birch: I. Solution, leaf age, and position effects. In: Thielges, Bart A., ed. Proceedings, 7th North American forest biology workshop; 1982 July 26-28; Lexington, KY. Lexington, KY: University of Kentucky, Department of Forestry; 1982: 237-241.

Jorgensen, Jacques R.; Craig, Joseph R. Legumes in forestry: results of adaptability trials in the Southeast. Res. Pap. 237. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983. 11 p.

Jorgensen, Jacques R.; Davis, Charles E. Methods of sericea lespedeza establishment for forest soil improvement. In: Jones, Earle P., Jr., ed. Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 48-53.

Juday, Glenn Patrick. Limestone landscapes of the White Mountains. Agroborealis January: 25-28; 1983.

Kaufmann, Merrill R. Leaf conductance during the final season of a senescing aspen branch. Plant Physiol. 70: 655-657; 1982.

Kaufmann, Merrill R.; Thor, Gary L. Measurement of water stress in subalpine trees: effects of temporary tissue storage methods and needle age. Can. J. For. Res. 12(4): 969-972; 1982.

Ketchie, D. O.; Lopushinsky, W. Composition of root pressure exudate from conifers. Res. Note PNW-395. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1981. 6 p.

Klock, Glen O.; Tarrant, Robert F. Research on forest and range soils in Oregon and Washington: a bibliography with abstracts from 1975 through 1979. Gen. Tech. Rep. PNW-130. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1981. 23 p.

Kochenderfer, J. N.; Wendel, G. W. Effects of fertilization and aspect on leaf biomass, leaf size, and leaf area index in central Appalachian hardwood stands. In: Muller, Robert N., ed. Proceedings, 4th Central hardwood forest conference; 1982 November 8-10; Lexington, KY. Lexington, KY: The University of Kentucky, Department of Forestry; 1982: 102-112.

Kochenderfer, J. N.; Wendel, G. W. Plant succession and hydrologic recovery on a deforested and herbicided watershed. For. Sci. 29(3): 545-558; 1983.

Kremer, A.; Larson, P. R. The relation between first-season bud morphology and second-season shoot morphology of jack pine seedlings. Can. J. For. Res. 12(4): 893-904; 1982.

Larson, P. R. Primary vascularization and the siting of primordia. In: Dale, J. E.; Milthorpe, F. L., eds. The growth and functioning of leaves. Cambridge, England: Cambridge University Press; 1983: 25-51.

Larson, Philip R.; Fisher, David G. Xylary union between elongating lateral branches and the main stem in Populus deltoides. Can. J. Bot. 61(4): 1040-1051; 1983.

Ledig, F. Thomas; Korbobo, Donald R. Adaptation of sugar maple populations along altitudinal gradients: photosynthesis, respiration, and specific leaf weight. Am. J. Bot. 70(2): 256-265; 1983.

Liegel, L. H. Effects of dry-heat sterilization on chemical properties of Puerto Rican soils. Commun. Soil Sci. Plant. Anal. 14(4): 277-286; 1983.

Lloyd, F. T.; McKee, W. H., Jr. Replications and subsamples eeded to show treatment responses on forest soils of the Coastal Plain. Soil Sci. Soc. Am. J. 47(3): 587-590; 1983.

Lugo, A. E.; McCormick, J. F. Influence of environmental stressors upon energy flow in a natural terrestrial ecosystem. In: Barrett, G. W.; Rosenberg, R., eds. Stress effects on natural ecosystems. Sussex, England: John Wiley and Sons; 1981: 79-102.

Lugo, A. E.; Morris, G. L. Los sistemas ecologicos y la humanidad [Ecological systems and man]. Monografia No. 23, Serie de Biologia. Secretaria General de la Organizacion de los Estados Americanos [Organization of American States] Programa Regional de Desarrollo Cientifico y Technologico; 1982. 82 p.

Lugo, Ariel E. Some aspects of the interaction among nutrient cycling, hydrology, and soils in wetlands. Water Int. 7(4): 178-184; 1982.

Lugo, Ariel E.; Applefield, Milton; Pool, Douglas J.; McDonald, Robert B. The impact of Hurricane David on the forests of Dominica. Can. J. For. Res. 13(2): 201-211; 1983.

Lugo, Ariel E.; Cintron, Gilberto; Goenaga, Carlos. Mangrove ecosystems under stress. In: Barrett, Gary W.; Rosenberg, Rutger, eds. Stress effects on natural ecosystems. Sussex, England: John Wiley and Sons; 1981: 129-153.

Lugo, Ariel E.; Schmidt, R.; Brown, Sandra. Preliminary estimates of storage and production of stemwood and organic matter in tropical tree plantations. In: Whitmore, J. L., ed. Wood production in the neotropics via plantations: Proceedings of the symposium, IUFRO Working Group S1-07-09; 1980 September 8-12; Rio Piedras, PR. Washington, DC: IUFRO/MAB-U.S. Department of Agriculture, Forest Service; 1981: 8-17.

Lugo, Ariel E.; Zucca, Carol Patterson. Comparison of litterfall and turnover in two Florida ecosystems. Florida Sci. 46(2): 101-110; [1982].

McDonald, Philip M. Climate, history, and vegetation of the Eastside Pine Type in California. In: Robson, Thomas F.; Standiford, Richard B., eds. Management of the eastside pine type in northeastern California: Proceedings of a symposium; 1982 June 15-17; Susanville, CA. SAF 83-06. Arcata, CA: Northern California Society of American Foresters; 1983: 1-16.

McKee, Arthur; LaRoi, George; Franklin, Jerry F. Structure, composition, and reproductive behavior of terrace forests, South Fork Hoh River, Olympic National Park. In: Starkey, Edward E.; Franklin, Jerry F.; Matthews, Jean W., tech. coords. Ecological research in National Parks of the Pacific Northwest: Proceedings, 2d conference on scientific research in the National Parks; 1979 November; San Francisco, CA. Corvallis, OR: Oregon State University, Forest Research Laboratory; 1982: 22-29.

Means, Joseph E. Natural revegetation. In: Mount St. Helens forest restoration; Minutes of the technical needs follow-up workshop; 1981 November 4; Kelso, WA. [Publisher location unknown]: St. Helens Forest Lands Research Cooperative; 1981: 8-14.

Means, Joseph E.; McKee, W. Arthur; Moir, William H.; Franklin, Jerry F. Natural revegatation [revegetation] of the northeastern portion of the devastated area. In: Keller, S. A. C., ed. Mount St. Helens: one year later: Proceedings of a symposium; 1981 May 17-18; Cheney, WA. Cheney, WA: Eastern Washington University Press; 1982: 93-103.

Meicenheimer, R. D.; Larson, P. R. Empirical models for xylogenesis in Populus deltoides. Ann. Bot. 51: 491-502; 1983.

Michael, J. L. Pine tolerance to some new chemicals. In: Proceedings, 36th annual meeting of the Southern Weed Science Society; 1983 January 18-20; Biloxi, MS. Champaign, IL: Southern Weed Science Society; 1983: 218-221.

Morris, Lawrence A.; Pritchett, William L.; Swindel, Benee F. Displacement of nutrients into windrows during site preparation of a flatwood forest. Soil Sci. Soc. Am. J. 47(3): 591-594; 1983.

National Research Council. Calliandra: a versatile small tree for the humid tropics. Washington, DC: National Academy Press; 1983. 52 p.

National Research Council. Mangium and other acacias for the humid tropics. Washington, DC: National Academy Press; 1983. 62 p.

Nelson, N. D.; Dickmann, D. I.; Gottschalk, K. W. Autumnal hotosynthesis in short-rotation intensively cultured Populus clones. Photosynthetica 16(3): 321-333; 1982.

Nelson, Neil D.; Michael, Donald. Photosynthesis, leaf conductance, and specific leaf weight in long and short shoots of Populus 'Tristis #1' grown under intensive culture. For. Sci. 28(4): 737-744; 1982.

Nutter, Wade L.; McMinn, James W. Effect of wood energy harvesting on soil and nutrients. In: Wood energy--a forest management tool for small landowners: Proceedings, 1982 wood energy conference; 1982 May 18-20; Rome, GA. Macon, GA: Georgia Forestry Commission; 1983: 90-93.

Perala, D. A.; Alban, D. H. Rates of forest floor decomposition and nutrient turnover in aspen, pine, and spruce stands on two different soils. Res. Pap. NC-227. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 5 p.

Peterson, David L.; Rolfe, Gary L. Nutrient dynamics and decomposition of litterfall in floodplain and upland forests of central Illinois. For. Sci. 28(4): 667-681; 1982.

Peterson, David L.; Rolfe, Gary L. Seasonal variation in nutrients of floodplain and upland forest soils of central Illinois. Soil Sci. Soc. Am. J. 46(6): 1310-1315; 1982.

Peterson, J. K. Mechanisms involved in delayed germination of Quercus nigra L. seeds. Ann. Bot. 52: 81-92; 1983.

Phelps, J. E.; Nelson, N. D.; Rietveld, W. J.; McGinnes, E. A., Jr. Rates of ethylene production by parenchyma cells in black walnut sapwood. Wood and Fiber Sci. 15(1): 23-27; 1983.

Ponder, Felix, Jr. Soil moisture levels and mycorrhizal infection in black walnut seedlings. Commun. in Soil Sci. Plant Anal. 14(6): 507-511; 1983.

Pregitzer, Kurt S.; Barnes, Burton V. The use of ground flora to indicate edaphic factors in upland ecosystems of the McCormick Experimental Forest, Upper Michigan. Can. J. For. Res. 12(3): 661-672; 1982.

Pregitzer, Kurt S.; Barnes, Burton V.; Lemme, Gary D. Relationship of topography to soils and vegetation in an Upper Michigan ecosystem. Soil Sci. Soc. Am. J. 47(1): 117-123; 1983.

Rietveld, W. J. A versatile apparatus for static solution systems. HortScience 17(4): 583-585; 1982.

Rietveld, W. J. Allelopathic effects of juglone on germination and growth of several herbaceous and woody species. J. Chem. Ecol. 9(2): 295-308; 1983.

Rietveld, W. J.; Williams, Robert D. Lifting date and storage affect root regeneration potential of black walnut seedlings. In: Proceedings, Northeastern Area nurserymen's conference; 1981 August 10-13; Springfield, MO. Broomall, PA: Northeastern Area State and Private Forestry; 1981: 34-38. (Also in: Proceedings, 1980 Southern nursery conference; 1980 September 2-4; Lake Barkley, KY. Tech. Publ. SA-TP17. Atlanta, GA: Southeastern Area State and Private Forestry; 1981: 42-45.)

Rietveld, W. J.; Williams, Robert D.; McBride, F. Danny. Starch levels in fall-lifted hardwood planting stock and their relation to field survival and growth. In: Proceedings, 1982 Northeastern Area nurserymen's conference; 1982 July 25-29; Halifax, Nova Scotia, Canada. Truro, Nova Scotia, Canada: Nova Scotia Department of Lands and Forests; 1982: 86-97.

Rietveld, W. J.; Williams, Robert D.; Polak, David J. Evaluation of electrical techniques to determine lifting time for hardwood planting stock. In: Proceedings, 1982 Northeastern Area nurserymen's conference; 1982 July 25-29; Halifax, Nova Scotia, Canada. Truro, Nova Scotia, Canada: Nova Scotia Department of Lands and Forests; 1982: 47-73.

Rominger, James M.; Paulik, Laurie A. A floristic inventory of the plant communities of the San Francisco Peaks Research Natural Area. Gen. Tech. Rep. RM-96. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1983. 9 p.

Running, Steven W.; Hungerford, Roger D. Spatial extrapolation of meteorological data for ecosystem modeling applications. In: Proceedings, 16th conference on agriculture and forest meteorology; 1983 April 25-29; Fort Collins, CO. Boston, MA: American Meteorological Society; 1983: 192-195.

Sapega, Elizabeth A.; Donnelly, John R.; Yawney, Harry W. Carbohydrate assimilation and distribution in rooted maple cuttings: results of an exploratory study. In: Thielges, Bart A., ed. Proceedings, 7th North American forest biology workshop; 1982 July 26-28; Lexington, KY. Lexington, KY: University of Kentucky, Department of Forestry; 1982: 242-245.

Schier, G. A. Sucker regeneration in some deteriorating Utah aspen stands: development of independent root systems. Can. J. For. Res. 12(4): 1032-1035; 1982.

Schultz, R. C.; Isebrands, J. G.; Kormanik, P. P. Mycorrhizae of poplars. In: Hansen, Edward A., comp. Intensive plantation culture: 12 years research. Gen. Tech. Rep. NC-91. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1983: 17-28.

Scowcroft, Paul G. Distribution and germination of mamane seeds. Res. Note PSW-356. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station; 1982. 4 p.

Scurlock, J. H.; Mitchell, R. G.; Ching, K. K. Insects and other factors affecting noble fir seed production at two sites in Oregon. Northwest Sci. 56(2): 101-107; 1982.

Stark, N. The nutrient content of Rocky Mountain vegetation: a handbook for estimating nutrients lost through harvest and burning. Misc. Publ. 14. Missoula, MT: University of Montana, Montana Forest and Conservation Experiment Station, School of Forestry; 1982. 81 p.

Starkey, Edward E.; Franklin, Jerry F.; Matthews, Jean W., tech. coords. Ecological research in National Parks of the Pacific Northwest: Proceedings, 2d conference on scientific research in the National Parks; 1979 November; San Francisco, CA. Corvallis, OR: Oregon State University, Forest Research Laboratory; 1982. 142 p.

Steele, Robert; Cooper, Stephen V.; Ondov, David M.; [and others]. Forest habitat types of eastern Idaho-western Wyoming. Gen. Tech. Rep. INT-144. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 122 p.

Sucoff, Edward. Water relations of the aspens. Tech. Bull. 338. St. Paul, MN: University of Minnesota, Agricultural Experiment Station; 1982. 36 p.

Sundberg, Marshall D. Vascular development in the transition region of Populus deltoides Bartr. ex Marsh. seedlings. Am. J. Bot. 70(5): 735-743; 1983.

Tiarks, Allan E. Phosphorus sorption curves for evaluating phosphorus requirements of loblolly pine (Pinus taeda L.). Comm. in Soil Sci. Plant Anal. 13(8): 619-631; 1982.

Tinus, Richard W. Effects of dewining, soaking, stratification, and growth regulators on germination of green ash seed. Can. J. For. Res. 12(4): 931-935; 1982.

Tinus, Richard W. Prospects for a new energy-efficient system for greenhouse container tree nurseries. In: Thielges, Bart A., ed. Proceedings, 7th North American forest biology workshop; 1982 July 26-28; Lexington, KY. Lexington, KY: University of Kentucky, Department of Forestry; 1983: 5 p.

Tinus, Richard W. Sand and hydrogel seed covering improves germination of several hardwoods in a soil that crusts. In: Proceedings, 1982 conference of western forestry nursery council; 1982 August 10-12; Medford, OR. Ashland, OR: Southern Oregon State College; 1983: 21-26.

Tubbs, Carl H. Avoidance mechanisms in allelopathic relationships of sugar maple and yellow birch. In: America's hardwood forests--opportunities unlimited: Proceedings, 1982 convention of the Society of American Foresters; 1982 September 19-22; Cincinnati, OH. SAF 83-04. Bethesda, MD: Society of American Foresters; 1983: 189-193.

Van Cleve, K; Dyrness, C. T.; Viereck, L. A.; [and others]. Taiga ecosystems in interior Alaska. Bio. Sci. 33(1): 39-44; 1983.

Van Sambeek, J. W.; Rietveld, W. J. Preplant indolebutyric acid treatment of outplanted black walnut seedlings. In: Thielges, Bart A., ed. Proceedings, 7th North American forest biology workshop; 1982 July 26-28; Lexington, KY. Lexington, KY: University of Kentucky, Department of Forestry; 1982: 272-280.

Venator, Charles R. Seasonal changes in chemical components of loblolly pine seedlings. In: Thielges, Bart A., ed. Proceedings, 7th North American forest biology workshop; 1982 July 26-28; Lexington, KY. Lexington, KY: University of Kentucky, Department of Forestry; 1983: 314-321.

Vogelmann, Thomas C.; Dickson, Richard E. Microauto-radiography of water-soluble compounds in plant tissue after freeze-drying and pressure infiltration with epoxy resin. Plant Physiol. 70: 606-609; 1982.

Vogelmann, Thomas C.; Larson, Philip R.; Dickson, Richard E. Translocation pathways in the petioles and stem between source and sink leaves of Populus deltoides Bartr. ex Marsh. Planta 156: 345-358; 1982.

Vozzo, J.A. Xeroradiography for seed research. In: Reunion Sobre Problemas en Simillas Forestales Tropicales; 1980 October; San Felipe-Bacalar, Quintana Roo, Mexico: Inst. Nacional de Invest. Forestales Publ. Esp. No. 35; 1981: 299-302.

Wells, Martha J. M. The effect of silanol masking on the recovery of picloram and other salutes from a hydrocarbonaceous pre-analysis extraction column. J. Liquid Chromatogr. 5(12): 2293-2309; 1982.

Williams, Robert D. Black walnut mycorrhizae not suppressed by high soil fertility. In: Proceedings, 1982 Northeastern Area nurserymen's conference; 1982 July 25-29; Halifax, Nova Scotia, Canada. Truro, Nova Scotia, Canada: Nova Scotia Department of Lands and Forests; 1982: 98-106.

Zobel, Donald B.; Antos, Joseph A. Adventitious rooting of eight conifers into a volcanic tephra deposit. Can. J. For. Res. 12(3): 717-719; 1982.

Silviculture and Management

Alden, John N.; Zasada, John. Potential of lodgepole pine as a commercial forest tree species on an upland site in interior Alaska. In: Lodgepole pine: regeneration and management. Gen. Tech. Rep. PNW-157. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1983: 42-48.

Baker, James B. Guidelines for natural regeneration. In: Jordan, F.; Balmer, W. E., eds. How to help landowners with forest regeneration. Atlanta, GA: Mississippi Forestry Commission in cooperation with U.S. Department of Agriculture, Forest Service, Southeastern Area State & Private Forestry; 1982: 35-40.

Banker, R. E.; Miller, J. H.; Davis, D. E. First-year effects of rootraking on available nutrients in Piedmont Plateau soils. In: Jones, Earle P., Jr., ed. Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 23-25.

Barnett, James P. Ethylene: a problem in seedling storage. Tree Plant. Notes 34(1): 28-29; 1983.

Barnett, James P. Freeze- and kiln-drying of slash pine cones and seeds. In: Jones, Earle P., Jr., ed. Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 387-389.

Barnett, James P. Producing plantable containerized seedlings--a status report. In: Stephenson, Everett H., ed. Regeneration of southern pines: Proceedings of a workshop; 1982 October 19-21; Woodworth, LA. Long Beach, MS: Forestry and Harvesting Training Center; 1982: 103-149.

Barnett, James P. Relating field performance of containerized longleaf and shortleaf pine seedlings to mycorrhizal inoculation and initial size. In: Thielges, Bart A., ed. Proceedings, 7th North American forest biology workshop; 1982 July 26-28; Lexington, KY. Lexington, KY: University of Kentucky, Department of Forestry; 1983: 358-367.

Barrett, James W. Twenty-year growth of ponderosa pine saplings thinned to five spacings in central Oregon. Res. Pap. PNW-301. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1982. 18 p.

Beck, Donald E. Thinning increases forage production in southern Appalachian cove hardwoods. South. J. Appl. For. 7(1): 53-56; 1983.

Benzie, John W. Direct seeding upland conifers. In: Mroz, Glenn D.; Berner, Jane F., comp. Proceedings, Artificial regeneration of conifers in the Upper Great Lakes Region; 1982 October 26-28; Green Bay, WI. Houghton, MI: Michigan Technological University; 1982: 292-298.

Benzie, John W. Red pine. In: Mroz, Glenn D.; Berner, Jane F., comp. Proceedings, Artificial regeneration of conifers in the Upper Great Lakes Region; 1982 October 26-28; Green Bay, WI. Houghton, MI: Michigan Technological University; 1982: 134-141.

Bledsoe, C. S.; Tennyson, K.; Lopushinsky, W. Survival and growth of outplanted Douglas-fir seedlings inoculated with mycorrhizal fungi. Can. J. For. Res. 12(3): 720-723; 1982.

Blum, Barton M.; Randall, A. G.; Klaiber, H. Northeastern Spruce-Fir. In: Choices in silviculture for eastern Canadian forests. Fredericton, NB: New Brunswick Department of Natural Resources, Forest Extension Branch; 1982: 11-15. ISBN 0-88838-369-X.

Blum, Barton M.; Klaiber, H.; Randall, A. G. L'Epinette-sapin du nord-est. In: Les choix de sylviculture dans les forets de l'est Canadian. Ministere des Ressources Naturelles Du Nouvewu-Brunswick, Le Service De Consultation Forestiere; 1983: 13-19. ISBN O-88838-520-X.

Boyce, S. G. A decision and control tool (DYNAST). Environ. Prof. 4: 261-266; 1982.

Boyce, S. G. Biological consequences of forest regulation. In: LeMaster, Dennis C.; Thomas, David M.; Baumgartner, David, eds. Sustained yield symposium; 1982 April 27-28; Spokane, WA. Pullman, WA: Washington State University; 1982: 29-35.

Boyd, R. J. Chemical site preparation for herbaceous plant communities. In: Baumgartner, David M., ed. Site preparation and fuels management on steep terrain: Proceedings of a symposium; 1982 February 15-17; Spokane, WA. Pullman, WA: Washington State University, Cooperative Extension; 1982: 49-53.

Boyer, William D. Growth of young longleaf pine as affected by biennial burns plus chemical or mechanical treatments for competition control. In: Jones, Earle P., Jr., ed. Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 62-65.

Cain, M. D.; Yaussy, D. A. Reinvasion of hardwoods following eradication in an uneven-aged pine stand. Res. Pap. SO-188. New Orleans, LA: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station; 1983. 8 p.

Cain, Michael D. Precommercial thinning for private, nonindustrial landowners: a methodology report. In: Jones, Earle P., Jr., ed. Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 200-205.

Campbell, T. E. Direct seeding may present attractive option for pine regeneration on smaller tracts. For. Farmer 42(2): 8-9, 26-27; 1982.

Campbell, T. E. Effects of initial seedling density on spot-seeded loblolly and slash pines at age 15 years. In: Jones, Earle P., Jr., ed. Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 118-127.

Campbell, T. E. Guidelines for direct seeding. In: Jordon, F.; Balmer, W. E., eds. How to help landowners with forest regeneration. Atlanta, GA: Mississippi Forestry Commission in cooperation with U.S. Department of Agriculture, Forest Service, Southeastern Area State & Private Forestry; 1982: 20-26.

Campbell, T. E. Guidelines for direct seeding of pine trees. Bull. Int. Erosion Control Assoc. 15(2): 3-5; 1983.

Campbell, T. E. Standardization suggestions for herbicide application in research. In: Rogers, Larry, ed. Proceedings, 36th annual meeting of the Southern Weed Science Society; 1983 January 18-20; Biloxi, MS. Champagne, IL: Southern Weed Science Society; 1983: 275-277.

Campbell, T. E. Three new herbicides tested for tree injection. In: Rogers, Larry, ed. Proceedings, 36th annual meeting of the Southern Weed Science Society; 1983 January 18-20; Biloxi, MS. Champagne, IL: Southern Weed Science Society; 1983: 260-264.

Campbell, Tucker. Direct seeding pine for the small landowner. In: Stephenson, Everett H., ed. Regeneration of southern pines: Proceedings of a workshop; 1982 October 19-21; Woodworth, LA. Long Beach, MS: Forestry and Harvesting Training Center; 1982: 177-187.

Carl, C.M., Jr. Stratification of sugar maple seed. Tree Plant. Notes 34(1): 25-27; 1983.

Cochran, P. H. Stocking levels for east-side white or grand fir. In: Oliver, Chadwick Dearing; Kenady, Reid M., eds. Biology and management of true fir in the Pacific Northwest: Proceedings of the symposium; 1981 February 24-26; Seattle, WA. Contrib. 45. Seattle, WA: College of Forest Resources, University of Washington; Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1983: 186-189.

Cochran, P. H.; Barrett, James W. Fertilization of ponderosa pine--responses and costs. In: Robson, Thomas F.; Standiford, Richard B., eds. Management of the eastside pine type in northeastern California: Proceedings of a symposium; 1982 June 15-17; Susanville, CA. SAF 83-06. Arcata, CA: Northern California Society of American Foresters; 1983: 66-69.

Cochran, P. H.; Barrett, James. Implications of site quality for eastside ponderosa pine. In: Robson, Thomas F.; Standiford, Richard B., eds. Management of the eastside pine type in northeastern California: Proceedings of a symposium; 1982 June 15-17; Susanville, CA. SAF 83-06. Arcata, CA: Northern California Society of American Foresters; 1983: 59-65.

Cole, Dennis M. Canopy development in lodgepole pine: implications for wildlife studies and multiple resource management. Gen. Tech. Rep. INT-139. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 13 p.

Crouch, Glenn L. Aspen regeneration after commercial clearcutting in Southwestern Colorado. J. For. 83(5): 316-319; 1983.

Davis, E. A.; Gottfried, G. J. Picloram pellets control New Mexico locust sprouts on a cleared forest site in Arizona. Down to Earth 39(1): 18-21; 1983.

Dawson, J. O.; White, T. A.; Dzialowy, P. J.; Herendeen, R. A. Nitrogen accretion in surficial soil of a young plantation of Robinia pseudoacacia. For. Res. Rep. 82-7. Urbana-Champaign, IL: University of Illinois, Agricultural Experiment Station, Department of Forestry; 1982. 3 p.

Dawson, Jeffrey O.; Dzialowy, Paul J.; Gertner, George Z.; Hansen, Edward A. Soil nitrogen patterns around Alnus glutinosa in mixed plantation with hybrid Populus. In: Muller, Robert N., ed. Proceedings, 4th central hardwood forest conference; 1982 November 8-10; Lexington, KY. Lexington, KY: University of Kentucky, Department of Forestry; 1982: 263-270.

Dawson, Jeffrey O.; Hansen, Edward A. Effect of Alnus glutinosa on hybrid Populus growth and soil nitrogen concentration in a mixed plantation. In: Hansen, Edward A., comp. Intensive plantation culture: 12 years research. Gen. Tech. Rep. NC-91. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1983: 29-34.

Della-Bianca, Lino. Composition and characteristics of advance reproduction in the pure yellow-poplar component of cove hardwoods in the Southern Appalachians. In: Jones, Earle P., Jr., ed. Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 166-171.

Della-Bianca, Lino. Effect of intensive cleaning on natural pruning of cove hardwoods in the southern Appalachians. For. Sci. 29(1): 27-32; 1983.

Della-Bianca, Lino. Sixty years of stand development in a southern Appalachian cove-hardwood stand. For. Ecol. and Manage. 5(3): 229-241; 1983.

Demeritt, M. E., Jr. Making the most of the hybrid poplar. For. Notes 151: 2-4; Winter 1983.

Dimock, Edward J., II; Beebe, Thomas F.; Collard, Ernest B. Planting-site preparation with herbicides to aid conifer reforestation. Weed Sci. 31(2): 215-221; 1983.

Dixon, R. K.; Pallardy, S. G.; Garrett, H. E.; [and others]. Comparative water relations of container-grown and bare-root ectomycorrhizal and nonmycorrhizal Quercus velutina seedlings. Can. J. Bot. 61(6): 1559-1565; 1983.

Dunlap, J. R.; Barnett, J. P. Influence of seed size on germination and early development of loblolly pine (Pinus taeda L.) germinants. Can. J. For. Res. 13(1): 40-44; 1983.

Edwards, M. Boyd. A spectrum of site preparation alternatives in the lower Piedmont of Georgia. In: Jones, Earle P., Jr., ed. Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 1-4.

Edwards, M. Boyd. Land-use in Jones County, Georgia: an historic perspective. Ga. J. Sci. 41(3): 71-78; 1983.

Edwards, M. Boyd; Miller, James H. So you want to get rid of your kudzu? Alabama For. 26(2): 11-12; 1983.

Erdmann, Gayne G.; Godman, Richard M.; Peterson, Ralph M., Jr. How to release yellow birch in the Lake States. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 6 p.

Fairweather, John R.; Kurtz, William B.; Baumgartner, David C. Determining forest management dispositions of Missouri Eastern Ozark nonindustrial private forest landowners. Trans. Missouri Acad. Sci. 16: 131-135; 1982.

Farrar, R. M., Jr. Results after 21 years in precommercially thinned direct-seeded southern pine stands. In: Jones, Earle P., Jr., ed. Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 206-212.

Farrar, R. M., Jr.; White, J. B. Early development of longleaf pine planted on prepared sites in the East Gulf. In: Jones, Earle P., Jr., ed. Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 109-117.

Feduccia, Donald P. Initial planting density in southern pine plantations. In: Stephenson, Everett H., ed. Regeneration of southern pines: Proceedings of a workshop; 1982 October 19-21; Woodworth, LA. Long Beach, MS: Forestry and Harvesting Training Center; 1982: 150-166.

Fiedler, Carl E. Regeneration of clearcuts within four habitat types in western Montana. In: Baumgartner, David M., ed. Site preparation and fuels management on steep terrain: Proceedings of a symposium; 1982 February 15-17; Spokane, WA. Pullman, WA: Washington State University, Cooperative Extension; 1982: 139-147.

Francis, John K. Acorn production and tree growth of Nuttall oak in a green-tree reservoir. Res. Note SO-289. New Orleans, LA: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station; 1983. 3 p.

Francis, John K. Cherrybark and Shumard oaks successfully planted on eroded ridges. Tree Plant. Notes 34(2): 28-30; 1983.

Francis, John K. Suckering and root connections of sweetgum on clayey soil. In: Jones, Earle P., Jr., ed. Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 189-192.

Francis, John K.; Baker, James B. Potential for nutrient depletion by short rotation harvest of sweetgum. Soil Sci. Soc. Am. J. 46(5): 1116-1118; 1982.

Frank, Robert M. Balsam fir (Pinaceae Abiesbalsamea) silvics, silviculture, and natural regeneration methods. In: Proceedings, Silvicultural guides workshop, Chippewa and Superior National Forests; 1983 February 14-18; Grand Rapids, MN. Duluth, MN: U.S. Department of Agriculture, Forest Service, Superior National Forest; 1983: 114-136.

Geary, T. F.; Millier, W. F. Pelleting small volumes of eucalyptus seed for precision sowing. S. Afr. For. J. 121: 79-83; 1982.

Geary, Thomas F.; Nobles, R. W. Selection of some exotic tree species for planting in St. Croix, Virgin Islands. In: Whitmore, J. L., ed. Wood production in the neotropics via plantations: Proceedings of the symposium, IUFRO Working Group S1-07-09; 1980 September 8-12; Rio Piedras, PR. Washington, DC: IUFRO/MAB-U.S. Department of Agriculture, Forest Service; 1981: 303-307.

Gill, J. D.; Worley, D. P. Managing nonindustrial private forestlands: a different approach. In: America's hardwood forests--opportunities unlimited: Proceedings, 1982 convention of the Society of American Foresters; 1982 September 19-22; Cincinnati, OH. SAF 83-04. Washington, DC: Society of American Foresters; 1983: 238-242.

Gottfried, Gerald J. Stand changes on a southwestern mixed conifer watershed after timber harvesting. J. For. 83(5): 311-316; 1983.

Gottschalk, K. W.; Marquis, D. A. Survival and growth of planted red oak and white ash as affected by residual overstory density, stock size, and deer browsing. In: Muller, Robert N., ed. Proceedings, 4th central hardwood forest conference; 1982 November 8-10; Lexington, KY. Lexington, KY: University of Kentucky, Department of Forestry; 1982: 125-140.

Graham, Joseph N.; Murray, Edward W.; Minore, Don. Environment, vegetation, and regeneration after timber harvest in the Hungry-Pickett area of southwest Oregon. Res. Note PNW-400. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1982. 17 p.

Graham, Russell T.; Smith, Richard A. Techniques for implementing the individual tree selection method in the grand fir-cedar-hemlock ecosystems of northern Idaho. Res. Note INT-332. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 4 p.

Graney, David L. Effects of thinning and fertilization on growth of upland oak stands in the Boston Mountains of Arkansas: 7-year results. In: Jones, Earle P., Jr., ed. Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 269-274.

Graney, David L. Response of red oaks and white oak to thinning and fertilization in the Boston Mountains of Arkansas: 7-year results. In: Muller, Robert N., ed. Proceedings, 4th central hardwood forest conference; 1982 November 8-10; Lexington, KY. Lexington, KY: University of Kentucky, Department of Forestry; 1982: 64-78.

Grelen, Harold E. May burning favors survival and early height growth of longleaf pine seedlings. South. J. Appl. For. 7(1): 16-20; 1983.

Grelen, Harold E. May burns benefit survival and growth of longleaf pine seedlings. In: Jones, Earle P., Jr., ed. Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 70-73.

Hall, Dale O.; Bruna, John A. A management decision framework for winnowing simulated all-aged stand prescriptions. Gen. Tech. Rep. INT-147. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 13 p.

Hall, Richard B.; Miller, Gregory A.; Robison, Terry L.; Onokpise, Oghenekome U. Developing Alnus for use in intensive culture. In: Hansen, Edward A., comp. Intensive plantation culture: 12 years research. Gen. Tech. Rep. NC-91. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1983: 35-45.

Hansen, Edward A. Irrigating forest plantations. In: Hansen, Edward A., comp. Intensive plantation culture: 12 years research. Gen. Tech. Rep. NC-91. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1983: 46-53.

Hansen, Edward A., comp. Intensive plantation culture: 12 years research. Gen. Tech. Rep. NC-91. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1983: 155 p.

Hansen, Edward; Moore, Lincoln; Netzer, Daniel; [and others]. Establishing intensively cultured hybrid poplar plantations for fuel and fiber. Gen. Tech. Rep. NC-78. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1983. 24 p.

Harms, W. R. An empirical function for predicting survival over a wide range of densities. In: Jones, Earle P., Jr., ed. Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 334-337.

Harms, W. R. Applying silvics to stand management--some guiding concepts. In: Loblolly pine ecosystem (East Region): Proceedings of the symposium; 1982 December 8-10; Raleigh, NC. Raleigh, NC: North Carolina State University, School of Forest Resources; 1983: 25-35.

Harrington, Constance A.; Reukema, Donald L. Initial shock and long-term stand development following thinning in a Douglas-fir plantation. For. Sci. 29(1): 33-46; 1983.

Harry, David E.; Jenkinson, James L.; Kinloch, Bohun B. Early growth of sugar pine from an elevational transect. For. Sci. 29(3): 660-669; 1983.

Harvey, Alan E. The importance of residual debris in site preparation and amelioration for reforestation. In: Baumgartner, David M., ed. Site preparation and fuels management on steep terrain: Proceedings of a symposium; 1982 February 15-17; Spokane, WA. Pullman, WA: Washington State University, Cooperative Extension; 1982: 75-85.

Haywood, J. D. Response of planted pines to site preparation on a Beauregard Caddo soil. In: Jones, Earle P., Jr., ed. Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 14-17.

Haywood, J. D. Small topographic differences affect slash pine response to site preparation and fertilization. South. J. Appl. For. 7(4): 145-148; 1983.

Hoff, R. J.; Coffen, D. O. Recommendations for selection and management of seed orchards of western white pine. Res. Note INT-325. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 7 p.

Horsley, S. B. Development of reproduction in Allegheny hardwood stands after herbicide-clearcuts and herbicide-shelterwood cuts. Res. Note NE-308. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1982. 4 p.

Horsley, S. B.; Bjorkbom, J. C. Herbicide treatment of striped maple and beech in Allegheny hardwood sands. For. Sci. 29(1): 103-112; 1983.

Horsley, S. B.; Marquis, D. A. Interference by weeds and deer with Allegheny hardwood reproduction. Can J. For. Res. 13(1): 61-69; 1983.

Isebrands, J. G.; Nelson, N. D. Crown architecture of short-rotation, intensively cultured Populus II. Branch morphology and distribution of leaves within the crown of Populus 'Tristis' as related to biomass production. Can. J. For. Res. 12(4): 853-864; 1982.

Isebrands, J. G.; Nelson, N. D.; Dickmann, D. I.; Michael, D. A. Yield physiology of short rotation intensively cultured poplars. In: Hansen, Edward A., comp. Intensive plantation culture: 12 years research. Gen. Tech. Rep. NC-91. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1983: 77-93.

Jenkinson, James L.; Bega, Robert V.; McCain, Arthur H. Winter sowings increase size and survival of nursery seedlings of sugar pine in the Sierra Nevada of California. In: INIA and IUFRO Reunion tecnica principios de introduccion de especies; 1982 October 4-8; Lourizan, Spain. [Publisher location unknown]: [Publisher unknown]; [1983]: [Pages unknown].

Jenkinson, James L.; Nelson, James A. 1-0 Douglas-fir: a bare-root planting option. In: Proceedings, 1982 conference of western forestry nursery council; 1982 August 10-12; Medford, OR. Ashland, OR: Southern Oregon State College; 1983: 63-76.

Johnson, Jon D.; Bramlett, Dave L.; Burns, Russell M.; [and others]. Pine seedling production in the South: a problem analysis. Publ. FWS-6-82. Blacksburg, VA: Virginia Polytechnic Institute and State University, School of Forestry and Wildlife Resources; 1982. 33 p.

Johnson, R. L.; Krinard, R. M. Development of seven hardwood species in small forest openings: 22-year results. South. J. Appl. For. 7(3): 153-156; 1983.

Johnston, William F. Direct seeding lowland conifers. In: Mroz, Glenn D.; Berner, Jane F., comp. Proceedings, Artificial regeneration of conifers in the Upper Great Lakes Region; 1982 October 26-28; Green Bay, WI. Houghton, MI: Michigan Technological University; 1982: 299-303.

Jones, Earle P., Jr., ed. Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983. 514 p.

Kincaid, Warren H.; Kurtz, William B.; Garrett, H. E. A silvicultural-economic model for black walnut. In: Proceedings, Black walnut for the future; 1981 August 9-14; West Lafayette, IN. Gen. Tech. Rep. NC-74. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982: 122-127.

Laacke, Robert J. Management experience in southern Cascades white fir stands. In: Oliver, Chadwick Dearing; Kenady, Reid M., eds. Proceedings, Biology and management of true fir in the Pacific Northwest symposium; 1981 February 24-26; Seattle, WA. Contrib. 45. Seattle, WA: University of Washington, College of Forest Resources; Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Staion; 1983: 335-336.

Lamson, Neil I. Precommercial thinning increases diameter growth of Appalachian hardwood stump sprouts. South. J. Appl. For. 7(2): 93-97; 1983.

Lamson, Neil I.; Miller, Gary W. Logging damage to dominant and codominant residual stems in thinned West Virginia cherry-maple stands. In: Muller, Robert N., ed. Proceedings, 4th central hardwood forest conference; 1982 November 8-10; Lexington, KY. Lexington, KY: University of Kentucky, Department of Forestry; 1982: 102-112.

Leak, W. B. Maintaining quality growth. In: Proceedings, Hardwood forest management and utilization symposium; 1982 October 26; Orono, ME. Misc. Rep. 279. Orono, ME: University of Maine, Maine Agricultural Experiment Station; 1983: 10-12.

Leak, W. B.; Tubbs, C. H. Percent crown cover tables for applying the shelterwood system in New England. Res. Note NE-313. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1983. 14 p.

Liegel, L. H. Major issues of plantation establishment on small Caribbean islands. In: Lugo, Ariel E.; Brown, Sandra, eds. Forestry in the Caribbean: Proceedings, 1st workshop of Caribbean foresters; 1982 May 24-28; Castries, St. Lucia. U.S. MAB Rep. No. 7. Washington, DC: U.S. Man and the Biosphere Program; 1982: 83-92.

Loftis, David L. Regenerating red oak on productive sites in the Southern Appalachians: a research approach. In: Jones, Earle P., Jr., ed. Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 144-150.

Lotan, James E.; Perry, David A. Ecology and regeneration of lodgepole pine. Agric. Handb. 606. Washington, DC: U.S. Department of Agriculture, Forest Service; 1983. 51 p.

Lugo, Ariel E.; Brown, Sandra, eds. Forestry in the Caribbean: roceedings, 1st workshop of Caribbean foresters; 1982 May 24-28; Castries, St. Lucia. U.S. MAB Rep. No. 7. Washington, DC: U.S. Man and the Biosphere Program; 1982. 137 p.

MacDicken, K. G.; Wakida, C. K.; Skolmen, R. G. Species: selection and predicted yields. In: Biomass alternative fuels program: final report. Hydropyrolysis of biomass to produce liquid hydrocarbon fuels, final report. Honolulu, HI: Pacific Resources, Inc.; 1982: 5-17.

Marquis, D. A. The effect of advance seedling size and vigor on survival after clearcutting. Res. Pap. NE-498. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1983. 7 p.

McDonald, Philip M. Weeds in conifer plantations of northeastern California...management implications. In: Robson, Thomas F.; Standiford, Richard B., eds. Management of the eastside pine type in northeastern California: Proceedings of a symposium; 1982 June 15-17; Susanville, CA. SAF 83-06. Arcata, CA: Northern California Society of American Foresters; 1983: 70-78.

McDonald, Stephen; Boyd, Raymond J.; Sears, Donald E. Lifting, storage, planting practices influence growth of conifer seedlings in the Northern Rockies. Res. Pap. INT-300. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 12 p.

McGee, Charles E. Low-quality hardwood stands: opportunities for management in the interior uplands. Gen. Tech. Rep. SO-40. New Orleans, LA: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station; 1982. 22 p.

McKee, William H., Jr.; Lewis, Clifford E. Influence of burning and grazing on soil nutrient properties and tree growth on a Georgia Coastal Plain site after 40 years. In: Jones, Earle P., Jr., ed. Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 79-86.

McLemore, B. F. Four formulations of Hexazinone for controlling hardwoods in pine stands. In: Proceedings, 36th annual meeting of the Southern Weed Science Society; 1983 January 18-20; Biloxi, MS. Champaign, IL: Southern Weed Science Society; 1983: 212-217.

McLemore, B. F. Recovery of understocked uneven-aged pine stands and suppressed trees. In: Jones, Earle P., Jr., ed. Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 226-229.

McNab, W. Henry; Brendemuehl, R. H. Choctawhatchee sand pine survival, height, and biomass in South Carolina: third-year results. In: Jones, Earle P., Jr., ed. Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 96-100.

McQuilkin, Robert A. Fertilization of oaks in the Missouri Ozarks. In: Muller, Robert N., ed. Proceedings, 4th central hardwood forest conference; 1982 November 8-10; Lexington, KY. Lexington, KY: University of Kentucky, Department of Forestry; 1982: 79-92.

Michael, Jerry L.; Boyer, William D. Forestry herbicides. For. Farmer 42(8): 6-7; 1983.

Miller, James H. A regression-adjusted approach can estimate competing biomass. In: Jones, Earle P., Jr., ed. Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 344-351.

Miller, James H.; Edwards, Boyd. Kudzu: where did it come from? And how can we stop it? South. J. Appl. For. 7(5): 165-169; 1983.

Miller, Richard E.; Tarrant, Robert F. Long-term growth response of Douglas-fir to ammonium nitrate fertilizer. For. Sci. 29(1): 127-137; 1983.

Minore, Don. Western redcedar--a literature review. Gen. Tech. Rep. PNW-150. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1983. 70 p.

Minore, Don; Abee, Albert; Smith, Stuart D.; White, E. Carlo. Environment, vegetation, and regeneration after timber harvest in the Applegate area of southwestern Oregon. Res. Note PNW-399. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1982. 15 p.

Mitchell, R. G.; Waring, R. H.; Pitman, G. P. Thinning lodgepole pine increases tree vigor and resistance to mountain pine beetle. For. Sci. 29(1): 204-211; 1983.

Murray, Mayo, ed. Lodgepole pine: regeneration and management. Gen. Tech. Rep. PNW-157. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1983. 52 p.

Neary, Daniel G.; Comerford, Nicholas B. Herbicidal weed reduction on slash pine beds amended with mill sludge. In: Proceedings, 36th annual meeting of the Southern Weed Science Society; 1983 January 18-20; Biloxi, MS. Champaign, IL: Southern Weed Science Society; 1983: 250-258.

Nienstaedt, Hans. White spruce in the Lake States. In: Mroz, Glenn D.; Berner, Jane F., comp. Proceedings, Artificial regeneration of conifers in the Upper Great Lakes Region; 1982 October 26-28; Green Bay, WI. Houghton, MI: Michigan Technological University; 1982: 142-167.

Nyland, R. D.; Marquis, D. A.; Whittemore, D. H. Northern hardwoods. In: Choices in silviculture for eastern Canadian forests. Fredericton, NB: New Brunswick Department of Natural Resources, Forestry Extension Bureau; 1983: 17-22.

Nyland, R. D.; Marquis, D. A.; Whittemore, D. H. Feuillus du nord. In: Les Chaix de Sylviculture dans les forets de L'est Canadien. New Brunswick, Canada: Le Service de Consultation Forestiere, Ministere des Ressources Naturalles, Du Nourcan; 1983: 26-27.

Oliver, William W.; Trask, John. Responses of Eastside Pine to precommercial thinning. In: Robson, Thomas F.; Standiford, Richard B., eds. Management of the eastside pine type in northeastern California: Proceedings of a symposium; 1982 June 15-17; Susanville, CA. SAF 83-06. Arcata, CA: Northern California Society of American Foresters; 1983: 107-113.

Othic, S. T.; Kurtz, W. B.; Baumgartner, D. C. Conversion of forestland in the Missouri Ozarks. Trans. Missouri Acad. Sci. 16: 37-42; 1982.

Parker, G. R.; Swank, W. T. Tree species response to clear-cutting a southern Appalachian watershed. Am. Midl. Nat. 108(2): 304-310; 1982.

Perala, Donald A. Early release--current technology and conifer response. In: Mroz, Glenn D.; Berner, Jane F., comp. Proceedings, Artificial regeneration of conifers in the Upper Great Lakes Region; 1982 October 26-28; Green Bay, WI. Houghton, MI: Michigan Technological University; 1982: 396-410.

Phillips, D. R. Piedmont hardwoods - the forgotten resource. In: Proceedings, Hardwood Research Council meeting; 1982 May 12-15; Cashiers, NC. Asheville, NC: Hardwood Research Council; 1982: [pages unknown].

Pierce, Kenneth; McGee, C. E. Fifth year results of direct seeding yellow-poplar on Tennessee's eastern Highland Rim. Tree Plant. Notes 33(4): 6-9; 1982.

Ponder, Felix, Jr. Site affects fertilizer benefits to black walnut. Walnut Counc. Bull. 10(1): 5-7; 1983.

Rogers, Robert. Guides for thinning shortleaf pine. In: Jones, Earle P., Jr., ed. Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 217-225.

Rogers, Robert; Johnson, Paul S. Is "COPPICE" a good predictor of red oak sprout growth? In: Muller, Robert N., ed. Proceedings, 4th central hardwood forest conference; 1982 November 8-10; Lexington, KY. Lexington, KY: University of Kentucky, Department of Forestry; 1982: 185-192.

Shearer, Raymond C. Establishment and growth of natural and planted conifers 10 years after clearcutting and burning in a Montana larch forest. In: Baumgartner, David M., ed. Site preparation and fuels management on steep terrain: Proceedings of a symposium; 1982 February 15-17; Spokane, WA. Pullman, WA: Washington State University, Cooperative Extension; 1982: 149-157.

Shearer, Raymond C.; Schmidt, Jack A. Reforesting a burned shrubfield and clearcut on a steep slope in a western larch forest northwest Montana. In: Baumgartner, David M., ed. Site preparation and fuels management on steep terrain: Proceedings of a symposium; 1982 February 15-17; Spokane, WA. Pullman, WA: Washington State University, Cooperative Extension; 1982: 159-165.

Shelton, M. G.; Switzer, G. L.; Nelson, L. E.; [and others]. The development of cottonwood plantations on alluvial soils. Tech. Bull. 113. Mississippi State, MS: Mississippi State University, Mississippi Agricultural and Forestry Experiment Station; 1982. 46 p.

Shepperd, Wayne D.; Alexander, Robert R. Overview to silvicultural systems in the central Rocky Mountains. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1983. 32 p. Misc. Publ.

Shepperd, Wayne D.; Alexander, Robert R. Silviculture of lodgepole pine in the central Rocky Mountains. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1983. 36 p. Misc. Publ.

Shepperd, Wayne D.; Alexander, Robert R. Silviculture of spruce-fir forests in the central Rocky Mountains. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1983. 44 p. Misc. Publ.

Shoulders, Eugene. Species selection: a critical choice. In: Stephenson, Everett H., ed. Regeneration of southern pines: Proceedings of a workshop; 1982 October 19-20; Woodworth, LA. Long Beach, MS: Forestry and Harvesting Training Center; 1982: 44-70.

Shoulders, Eugene; Tiarks, Allan E. A continuous function design for fertilizer rate trials in young pine plantations. In: Jones, Earle P., Jr., ed. Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 352-356.

Sidle, R. C.; Shaw, C. G., III. Evaluation of planting sites common to a southeast Alaska clear-cut: I. Nutrient status. Can. J. For. Res. 13(1): 1-8; 1983.

Skolmen, R. G.; Brewbaker, J.; Horiuchi, H. H. Species. In: Troy, Mary, ed. Hydropyrolysis of biomass to produce liquid hydrocarbon fuels. Report on energy farm workshop no. 2; 1982 June; Honolulu, HI. Honolulu, HI: University of Hawaii at Manoa, Natural Energy Institute; 1982: 18-23.

Skolmen, R. G.; King, T. D.; Horiuchi, H. H. Nursery: establishment and operation. In: Biomass alternative fuels program: final report. Hydropyrolysis of biomass to produce liquid hydrocarbon fuels, final report. Honolulu, HI: Pacific Resources, Inc.; 1982: 53-61.

Smalley, Glendon W. Classification and evaluation of forest sites on the Mid-Cumberland Plateau. Gen. Tech. Rep. SO-38. New Orleans, LA: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station; 1982. 58 p.

Smalley, Glendon W. Classification and evaluation of forest sites on the Eastern Highland Rim and Pennyroyal. Gen. Tech. Rep. SO-43. New Orleans, LA: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station; 1983. 123 p.

Smalley, Glendon W. Landtype and seed source affect 20-year growth of planted yellow-poplar on the Cumberland Plateau in Tennessee. In: Muller, Robert N., ed. Proceedings, 4th central hardwood forest conference; 1982 November 8-10; Lexington, KY. Lexington, KY: University of Kentucky, Department of Forestry; 1982: 158-168.

Smith, H. Clay. Growth of Appalachian hardwoods kept free to grow from 2 to 12 years after clearcutting. Res. Pap. NE-528. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1983. 6 p.

Smith, H. Clay; Lamson, Neil I. Number of residual trees: a guide for selection cutting. Gen. Tech. Rep. NE-80. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1982. 33 p.

Smith, H. Clay; Lamson, Neil I. Precommercial crop tree release increases diameter growth of Appalachian hardwood saplings. Res. Pap. NE-534. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1983. 7 p.

Snyder, C. S.; Graney, D. L.; Thompson, L. F. Nitrogen fertilization and thinning of oak stands in the Ozarks: effects on soil nitrogen, growth and nitrogen uptake of understory vegetation. In: Muller, Robert N., ed. Proceedings, 4th central hardwood forest conference; 1982 November 8-10; Lexington, KY. Lexington, KY: University of Kentucky, Department of Forestry; 1982: 51-63.

Solomon, Dale S.; Frank, Robert M. Growth response of Managed-unevenaged northern conifer stands. Res. Pap. NE-517. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1983. 17 p.

Stickney, Peter F. Vegetation response to clearcutting and broadcast burning on north and south slopes at Newman Ridge. In: Baumgartner, David M., ed. Site preparation and fuels management on steep terrain: Proceedings of a symposium; 1982 February 15-17; Spokane, WA. Pullman, WA: Washington State University, Cooperative Extension; 1982: 119-124.

Stone, Douglas M. Fertilization fails to increase diameter growth of selectively managed northern hardwoods. In: Winslow, Donald R., ed. Proceedings, Indiana Academy of Science; 1981 November 5-7; Crawfordsville, IN. Indianapolis, IN: Indiana Academy of Science; 1982; 91: 590-594.

Stone, Douglas M.; Shetron, Stephen G.; Peryam, James. Fertilization fails to increase diameter growth of sawlog-size northern hardwoods in Upper Michigan. For. Chron. 58(5): 207-210; 1982.

Stout, S. L. Computer program helps foresters write prescriptions for Allegheny hardwoods. Allegheny Society of American Foresters; Allegheny News; Spring 1983: 14-15.

Stransky, J. J.; Halls, L. K.; Watterson, K. G. Soil response to clearcutting and site preparation. In: Jones, Earle P., Jr., ed. Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 54-58.

Strong, Terry F.; Zavitkovski, Jerry. Effect of harvesting season on hybrid poplar coppicing. In: Hansen, Edward A., comp. Intensive plantation culture: 12 years research. Gen. Tech. Rep. NC-91. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1983: 54-57.

Swindel, Benee F.; Conde, Louis F.; Smith, Joel E. Plant cover and biomass response to clear-cutting, site preparation, and planting in Pinus elliottii flatwoods. Science 219(4591): 1421-1422; 1983.

Swindel, Benee F.; Marion, Wayne R.; Harris, Larry D.; [and others]. Multi-resource effects of harvest, site preparation, and planting in pine flatwoods. South. J. Appl. For. 7(1): 6-15; 1983.

Tiarks, A. E.; Shoulders, E. Effects of shallow water tables on height growth and phosphorus uptake by loblolly and slash pine. Res. Note SO-285. New Orleans, LA: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station; 1982. 5 p.

Tiarks, Allan E. Effect of site preparation and fertilization on slash pine growing on a good site. In: Jones, Earle P., Jr., ed. Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 34-39.

Tubbs, Carl H. Regeneration of high quality northern hardwoods. In: Proceedings, Hardwood management and utilization symposium; 1982 October 26; Orono, ME. Misc. Rep. 279. Orono, ME: University of Maine, Maine Agricultural Experiment Station; 1983: 6-9.

Van Lear, D. H.; Douglass, J. E.; Cox, S. K.; [and others]. Regeneration of loblolly pine plantations in the Piedmont by clearcutting with seed in place. In: Jones, Earle P., Jr., ed. Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 87-93.

Van Sambeek, J. W.; Rietveld, W. J. Leguminous cover crops can suppress weeds and accelerate growth of black walnut seedlings in intensively cultured plantations. In: Muller, Robert N., ed. Proceedings, 4th central hardwood forest conference; 1982 November 8-10; Lexington, KY. Lexington, KY: University of Kentucky, Department of Forestry; 1982: 229-243.

Venator, Charles R. Effect of lateral root pruning on development of nursery grown longleaf pine seedlings. Tree Plant. Notes 34(2): 17-20; 1983.

Venator, Charles R. Is it possible to detect cull trees within 1 year after planting? Tree Plant. Notes 34(2): 26-28; 1983.

Vodak, M. C.; Wellman, J. D.; Buhyoff, G. J. Landowner motivations of the visual impacts and perceptions of eastern hardwood management: quantitative information on landowners' assessments should prove valuable in developing management practices for private forest landowners. In: Program and Abstracts, The Rural Landscape, 1982 Conference of the Council of Educators in Landscape Architecture; 1982 October 23-27; Blacksburg, VA: Virginia Tech; 1982: 51.

Wadsworth, Frank H. Production of usable wood from tropical forests. In: Golley, F. B., ed. Tropical rain forest ecosystems: a structure and function. Amsterdam, The Netherlands: Elsevier Scientific Publ. Co.; 1983: 279-288.

Walters, James W.; Hinds, Thomas E.; Johnson, David E.; Beatty, Jerome. Effects of partial cutting on diseases, mortality, and regeneration of Rocky Mountain aspen stands. Res. Pap. RM-240. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1982. 12 p.

Weatherspoon, C. Phillip. Residue management in the Eastside Pine Type. In: Robson, Thomas F.; Standiford, Richard B., eds. Management of the eastside pine type in northeastern California: Proceedings of a symposium; 1982 June 15-17; Susanville, CA. SAF 83-06. Arcata, CA: Northern California Society of American Foresters; 1983: 114-121.

Wells, Carol; Morris, Larry. Maintenance and improvement of soil productivity. In: Loblolly pine ecosystem (East Region): Proceedings of the symposium; 1982 December 8-10; Raleigh, NC. Raleigh, NC: North Carolina State University, School of Forest Resources; 1983: 306-318.

Whitmore, J. L., ed. Wood production in the neotropics via plantations. In: IUFRO Working Group S1-07-09: Proceedings of the symposium; 1980 September 8-12; Rio Piedras, PR. Washington, DC: IUFRO/MAB-U.S. Department of Agriculture, Forest Service; 1981. 393 p.

Williams, Robert D. Black walnut seed: from tree to seedling. In: Proceedings, Black walnut for the future; 1981 August 9-14; West Lafayette, IN. Gen. Tech. Rep. NC-74. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982: 114-117.

Williamson, Richard L. Response to commercial thinning in a 110-year-old Douglas-fir stand. Res. Pap. PNW-296. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1982. 16 p.

Woodall, S. L. Herbicide tests for control of Brazilian-pepper and melaleuca in Florida. Res. Note SE-314. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station, 1983. 10 p.

Woodall, Steven L. Establishment of Melaleuca quinquenervia seedlings in the pine-cypress ecotone of southwest Florida. Florida Sci. 46(2): 65-72; 1983.

Zahner, R. Productivity and benefits of young hardwoods in mixed pine hardwood stands. In: Proceedings, Hardwood Research Council meeting; 1982 May 12-15; Cashiers, NC. Asheville, NC: Hardwood Research Council; 1982: 84-91.

Zavitkovski, J.; Phipps, Howard M. Survival and growth of two intensively cultured jack pine provenances raised in Tubepak and Jiffy 7 containers. In: Hansen, Edward A., comp. Intensive plantation culture: 12 years research. Gen. Tech. Rep. NC-91. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1983: 12-16.

Zavitkovski, Jerry; Strong, Terry F. How to grow and use hybrid poplar firewood. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 4 p.

Growth and Yield

Alban, D. H.; Laidly, P. R. Generalized biomass equations for jack and red pine in the Lake States. Can. J. For. Res. 12(4): 913-921; 1982.

Alexander, Robert R. Seed: seedling ratios of Englemann spruce after clearcutting in the central Rocky Mountains. Res. Note RM-426. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1983. 6 p.

Alexander, Robert R.; Edminster, Carleton B. Engelmann spruce seed dispersal in the central Rocky Mountains. Res. Note RM-424. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1983. 4 p.

Allen, H. Lee; Ballard, Russ. Forest fertilization of loblolly pine. In: Fertilization and maintenance of soil productivity in loblolly stands; 1982 December 8-10; Raleigh, NC. For. Fert. Coop. Rep. 14. Raleigh, NC: North Carolina State University; 1983: 20-32.

Baldwin, V. C., Jr. A summary of published southern pine plantation tree biomass studies. In: Baldwin, V. C., Jr.; Lohrey, R. E., eds. Proceedings, 1982 Southern forest biomass working group workshop; 1982 June 16-18; Alexandria, LA. Baton Rouge, LA: Louisiana State University; 1982: 33-45.

Baldwin, V. C., Jr.; Lohrey, R. E., eds. Proceedings, 1982 Southern forest biomass working group workshop; 1982 June 16-18; Alexandria, LA. Baton Rouge, LA: Louisiana State University: 1982. 131 p.

Baldwin, V. C., Jr.; Saucier, J. R. Aboveground weight and volume of unthinned, planted longleaf pine on west gulf forest sites. Res. Pap. SO-191. New Orleans, LA: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station; 1983. 25 p.

Baldwin, Virgil C., Jr. A procedure to obtain even-aged forest stand structure and volume predictions using aerial photographic information. In: Brann, Thomas B.; House, Louis O., IV; Land, H. Gyde, eds. Proceedings, National workshop on in-place resource inventories: principles and practices; 1981 August 9-14; Orono, ME. SAF 82-02. Washington, DC: Society of American Foresters; 1982: 308-314.

Boyer, William D. Variations in height-over-age curves for young longleaf pine plantations. For. Sci. 29(1): 15-27; 1983.

Brand, Gary J.; Holdaway, Margaret R. Users need performance information to evaluate models. J. For. 81(4): 235-237, 254; 1983.

Bruce, David. Butt log volume estimators. For. Sci. 28(3): 489-503; 1982.

Buchman, Roland G.; Shifley, Stephen R. Guide to evaluating forest growth projection systems. J. For. 81(4): 232-234, 254; 1983.

Buhyoff, Gregory J.; Rauscher, Harald M.; Hull, R. Bruce, IV. Comprehensive statistical microcomputing: an evaluation. In: Moser, John W., Jr., ed. Proceedings, Micro-computers: a new tool for foresters; 1982 May 18-20; West Lafayette, IN. SAF 82-05. West Lafayette, IN: Purdue University; 1982: 44-51.

Burkhart, Harold E.; Knoebel, Bruce R.; Beck, Donald E. A growth and yield model for thinned stands of yellow-poplar (Liriodendron tulipifera). In: Proceedings, Forest growth modelling and simulation; 1982 October 4-8; Vienna, Austria; 1983: 41-52. Available from: Forstlichen Bundesversuchsanstalt, Wien, Austria.

Burton, James D.; Shoulders, Eugene. Crown size and stand density determine periodic growth in loblolly pine plantations. In: Jones, Earle P., Jr., ed. Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 283-287.

Crow, T. R. Comparing biomass regressions by site and stand age for red maple. Can J. For. Res. 13(2): 283-288; 1983.

Dahms, Walter G. Growth-simulation model for lodgepole pine in central Oregon. Res. Pap. PNW-302. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1983. 22 p.

Dell, Tommy R. Predicting growth and yield in Midsouth pine plantations. In: Hotvedt, James E.; Jackson, Ben D., eds. Predicting growth and yield in the mid-south: Proceedings, 31st annual forestry symposium; 1982 April 13-14; Baton Rouge, LA. Baton Rouge, LA: Louisiana State University, Division of Continuing Education, School of Forestry and Wildlife Management; 1983: 35-46.

Dolph, K. Leroy. Site index curves for young-growth incense-cedar of the westside Sierra Nevada. Res. Note PSW-363. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station; 1983. 8 p.

Ek, Alan R.; Lenarz, John E.; Dudek, Albert. Growth and yield of Populus coppice stands grown under intensive culture. In: Hansen, Edward A., comp. Intensive plantation culture: 12 years research. Gen. Tech. Rep. NC-91. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1983: 64-71.

Erdmann, Gayne G.; Crow, Thomas R.; Oberg, Robert R. Volume tables for second-growth northern hardwood forests in northeastern Wisconsin. Res. Pap. NC-222. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 5 p.

Erdmann, Gayne G.; Peterson, Ralph M., Jr. Estimating site index in even-aged northern hardwood stands. Res. Note NC-285. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 4 p.

Farrar, R. M., Jr. Predicting growth and yield in natural even-aged pine stands. In: Hotvedt, James E.; Jackson, Ben D., eds. Predicting growth and yield in the mid-south: Proceedings, 31st annual forestry symposium; 1982 April 13-14; Baton Rouge, LA. Baton Rouge, LA: Louisiana State University, Division of Continuing Education, School of Forestry and Wildlife Management; 1983: 47-60.

Frear, Samuel T. Strategies for improving the yield of Douglas-fir. For. Res. West. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, [Rocky Mountain Forest and Range Experiment Station]; 1983 June: 5-8.

Hahn, Jerold T.; Carmean, Willard H. Lake States site index curves formulated. Gen. Tech. Rep. NC-88. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 5 p.

Harrington, Constance A.; Murray, Marshall D. Patterns of height growth in western true firs. In: Oliver, Chadwick Dearing; Kenady, Reid M., eds. Proceedings, Biology and management of true fir in the Pacific Northwest symposium; 1981 February 24-26; Seattle, WA. Contrib. 45. Seattle, WA: University of Washington, College of Forest Resources; Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1983: 209-214.

Hilt, Donald E. Individual-tree diameter growth model for managed, even-aged, upland oak stands. Res. Pap. NE-533. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1983. 16 p.

Hilt, Donald E.; Rast, Everette D.; Bailey, Herman J. Predicting diameters inside bark for 10 important hardwood species. Res. Pap. NE-531. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1983. 7 p.

Kasile, J. D. Aerial photo biomass equations. In: Proceedings, NATO advanced study institute on biomass utilization; 1982 September 26-October 9; Alcabideche, Portugal. NY: Plenum Press; 1983: 103-107.

Leak, W. B. Stocking, growth and habitat relations in New Hampshire hardwoods. Res. Pap. NE-523. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1983. 11 p.

Leary, Rolfe A.; Florey, Rebecca J. Using a programmable calculator to compute and compare thinning schedules. Res. Note NC-281. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 3 p.

Little, Susan N. Weibull diameter distributions for mixed stands of western conifers. Can. J. For. Res. 13(1): 85-88; 1983.

Lloyd, F. T.; Jones, E. P., Jr. Density effects on height growth and its implications for site index prediction and growth projection. In: Jones, Earle P., Jr., ed. Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 329-334.

Lohrey, Richard E. Stem volume prediction and crown characteristics of thinned longleaf pine plantations. In: Jones, Earle P., Jr., ed. Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 338-342.

Lorimer, Craig G.; Krug, Albert G. Diameter distributions in even-aged stands of shade-tolerant and midtolerant tree species. Am. Midl. Nat. 109(2): 331-345; 1983.

Lundgren, Allen L. Can red pine in the Lake States outproduce loblolly and slash pine in the south? In: Mroz, Glenn D.; Berner, Jane F., comp. Proceedings, Artificial regeneration of conifers in the Upper Great Lakes Region; 1982 October 26-28; Green Bay, WI. Houghton, MI: Michigan Technological University; 1983: 337-344.

Martin, A. Jeff. The taper equation: a multi-purpose tool for the forester. The Consult. 28(2): 42-45; 1983.

McDonald, Philip M. Local volume tables for Pacific madrone, tanoak, and California black oak in north-central California. Res. Note PSW-362. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station; 1983. 6 p.

McNab, W. Henry; Edwards, M. Boyd. Estimating fuelwood yields from overstocked pine regeneration areas. TAPPI 65(10): 127-128; 1982.

Monserud, Robert A.; Ek, Alan R. Comparison of two stand growth models for northern hardwoods. In: Wright, H. L., ed. Planning, performance and evaluation of growth and yield studies: Proceedings of the meeting of IUFRO Subject Group S4.01; 1979 September; Oxford, England. CFI Occas. Pap. 20. Oxford, England: University of Oxford, Commonwealth Forestry Institute; 1983: 83-89.

Murphy, P. A. Predicting growth and yield in natural uneven-aged pine stands. In: Hotvedt, James E.; Jackson, Ben D., eds. Predicting growth and yield in the mid-south: Proceedings, 31st annual forestry symposium; 1982 April 13-14; Baton Rouge, LA. Baton Rouge, LA: Louisiana State University, Division of Continuing Education, School of Forestry and Wildlife Management; 1983: 61-70.

Murphy, P. A.; Farrar, R. M., Jr. Sawtimber volume predictions or uneven-aged loblolly-shortleaf pine stands on average sites. South. J. Appl. For. 7(1): 45-50; 1983.

Nance, Warren L. Simulated growth and yield of single-family versus multi-family loblolly. In: Jones, Earle P., Jr., ed. Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1982: 446-453.

Nance, Warren L.; Froelich, Ronald C.; Dell, Tommy R.; Shoulders, Eugene. A growth and yield model for unthinned slash pine plantations infected with fusiform rust. In: Jones, Earle P., Jr., ed. Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 275-282.

Ohmann, Lewis F. Tall shrub layer biomass in conifer plantations of northeastern Minnesota. Res. Pap. NC-219. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 30 p.

Phillips, D. R. Status of biomass estimation of southern woody saplingsize softwoods and hardwoods. In: Baldwin, V. C., Jr.; Lohrey, R. E., eds. Proceedings, 1982 Southern forest biomass working group workshop; 1982 June 16-18; Alexandria, LA. Baton Rouge, LA: Louisiana State University; 1982: 17-23.

Phillips, D. R.; McNab, W. H. Total-tree green weights of sapling-size pines in Georgia. Ga. For. Res. Pap. 39. Macon, GA: Georgia Forestry Commission; 1982. 18 p.

Raile, Gerhard K.; Smith, W. Brad; Weist, Carol A. A net volume equation for Michigan's Upper and Lower Peninsulas. Gen. Tech. Rep. NC-80. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 12 p.

Rauscher, Harald M.; Buhyoff, Gregory J. Data exchange between application programs. In: Moser, John W., Jr., ed. Proceedings, Micro-computers: a new tool for foresters; 1982 May 18-20; West Lafayette, IN. SAF Publ. 82-05. West Lafayette, IN: Purdue University; 1982: 16-26.

Shifley, Stephen R. A preliminary comparison of three tree growth models for Central States species. In: Muller, Robert N., ed. Proceedings, 4th Central hardwood forest conference; 1982 November 8-10; Lexington, KY. Lexington, KY: University of Kentucky, Department of Forestry; 1982: 169-184.

Shifley, Stephen R.; Moser, John W., Jr.; Brown, Kenneth M. Growth and yield model for the elm-ash-cottonwood type in Indiana. Res. Pap. NC-218. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 16 p.

Schlaegel, Bryce E. Predicting growth and yield in southern hardwood stands: a summary. In: Hotvedt, James E.; Jackson, Ben D., eds. Predicting growth and yield in the mid-south: Proceedings, 31st annual forestry symposium; 1982 April 13-14; Baton Rouge, LA. Baton Rouge, LA: Louisiana State University, Division of Continuing Education, School of Forestry and Wildlife Management; 1983: 101-117.

Schlaegel, Bryce E.; Willson, Regan B. Nuttall oak volume and weight tables. Res. Pap. SO-186. New Orleans, LA: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station; 1983. 14 p.

Seidel, Kenneth W. Growth of suppressed grand fir and Shasta red fir in central Oregon after release and thinning--10-year results. Res. Note PNW-404. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1983. 7 p.

Shoulders, Eugene. Comparison of growth and yield of four southern pines on uniform sites in the Gulf Coastal Plain. In: Hotvedt, James E.; Jackson, Ben D., eds. Predicting growth and yield in the mid-south: Proceedings, 31st annual forestry symposium; 1982 April 13-14; Baton Rouge, LA. Baton Rouge, LA: Louisiana State University, Division of Continuing Education, School of Forestry and Wildlife Management; 1983: 75-100.

Smith, W. Brad. Adjusting the STEMS regional forest growth model to improve local predictions. Res. Note NC-297. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1983. 5 p.

Solomon, Dale S.; Seegrist, Donald W. Growth and yield analysis of thinned uneven-aged spruce and fir stands in Maine. In: Wright, H. L., ed. Planning, performance and evaluation of growth and yield studies: Proceedings of the meeting of IUFRO Subject Group S4.01; 1979 September; Oxford, England. CFI Occas. Pap. 20. Oxford England: University of Oxford, Commonwealth Forestry Institute; 1983: 149-156.

Stein, William I. Developing an acceptable stocking survey. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1983. 13 p. NTIS Rep., Accession no. PB83 151746.

Sullivan, Alfred D.; Matney, Thomas G.; Hodges, John D. Variable density yield tables for red oak-sweetgum stands. In: Jones, Earle P., Jr., ed. Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 298-301.

Thomas, Charles E. Role of the southern forest survey in growth and yield modeling. In: Hotvedt, James E.; Jackson, Ben D., eds. Predicting growth and yield in the mid-south: Proceedings, 31st annual forestry symposium; 1982 April 13-14; Baton Rouge, LA. Baton, Rouge, LA: Louisiana State University, Division of Continuing Education, School of Forestry and Wildlife Management; 1983: 141-149.

Weaver, Peter L. Tree diameter increment in an upper montane forest of Puerto Rico. Turrialba 32(2): 119-122; 1982.

Weaver, Peter L. Tree growth and stand changes in the subtropical life zones of the Luquillo Mountains of Puerto Rico. Res. Pap. SO-190. New Orleans, LA: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station; 1983. 24 p.

Willson, Regan B.; Schlaegel, Bryce E.; Kennedy, Harvey E., Jr. Individual tree biomass models for plantation grown American sycamore. In: Baldwin, V. C., Jr.; Lohrey, R. E., eds. Proceedings, 1982 Southern forest biomass working group workshop; 1982 June 16-18; Alexandria, LA. Baton Rouge, LA: Louisiana State University; 1982: 89-94.

Wykoff, William R. Predicting basal area increment for individual northern Rocky Mountain conifers. In: Mitteilungen der Forstlichen Bundesversuchsanstalt Wien 147: 127-143; 1983.

Zahner, R. Myres, R. K.; Churchill, L. A. Site index curves for young oak stands of sprout origin. For. Bull. 35. Clemson, SC: Clemson University, Department of Forestry; 1982. 2 p.

Zavitkovski, J. Projected and actual biomass production of 2- to 10-year-old intensively cultured Populus 'Tristis # 1'. In: Hansen, Edward A., comp. Intensive plantation culture: 12 years research. Gen. Tech. Rep. NC-91. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1983: 72-76.

Genetics and Tree Improvement

Armstrong, Joseph E. Polyploidy and wood anatomy of mature white ash, Fraxinus americana. Wood and Fiber 14(4): 331-339; 1982.

Bey, Calvin F. Fusiform rust resistance research at the Southern Forest Experiment Station. In: Breeding insect and disease resistant forest trees: Proceedings, Service-wide genetics workshop; 1982 July 19-23; Eugene, OR. Washington, DC: U.S. Department of Agriculture, Forest Service, Timber Management Staff; 1982: 201-217.

Bey, Calvin F. Progeny testing the southern pines. In: Breeding insect and disease resistant forest trees: Proceedings, Service-wide genetics workshop; 1982 July 19-23; Eugene, OR. Washington, DC: U.S. Department of Agriculture, Forest Service, Timber Management Staff; 1982: 300-318.

Biggs, R. H.; Kossuth, S. V. Physiological model - a citrus harvest aid for 'valencia' fruits. Acta Hort. 120: 71-76; 1981.

Bramlett, David L. Controlled pollination techniques. In: Proceedings, Accelerated breeding short course; 1983 January 11-14; Raleigh, NC. Raleigh, NC: North Carolina State University--Industry Cooperative Tree Improvement Program; 1983; Section 3: 22-33.

Bramlett, David L. Pollination, fertilization, and seed development. In: Proceedings, Accelerated breeding short course; 1983 January 11-14; Raleigh, NC. Raleigh, NC: North Carolina State University--Industry Cooperative Tree Improvement Program; 1983; Section 2: 19-30.

Bridgwater, F. E. The morphogenesis of female strobili as it relates to receptivity and pollination success. In: Proceedings, Accelerated breeding short course; 1983 January 11-14; Raleigh, NC. Raleigh, NC: North Carolina State University--Industry Cooperative Tree Improvement Program; 1983; Chapter 4: 15-21.

Bridgwater, F. E.; Talbert, J. T.; Rockwood, D. L. Field design for genetic tests of forest trees. In: Proceedings, Workshop on progeny testing; 1982 June 15-16; Auburn, AL. South. Coop. Ser. Bull. 275. College Station, TX: Texas A&M University, Department of Agricultural Communications; 1983: 28-39.

Burdon, R. D. Breeding for productivity - jackpot or will-o-the-wisp? In: Thielges, Bart A., ed. Proceedings, 7th North American forest biology workshop; 1982 July 26-28; Lexington, KY. Lexington, KY: University of Kentucky, Department of Forestry; 1983: 31-35.

Burdon, R. D. Selection indices using information from multiple sources for the single trait case. Silvae Genet. 31(2-3): 81-85; 1982.

Burdon, R. D. The roles of and optimal place of vegetative propagation in forest tree breeding. In: Proceedings, IUFRO joint meeting of working parties on genetics about breeding strategies including multiclonal varieties; 1982 September 6-10; Sensenstein, Federal Republic of Germany; Lower Saxony Forest Research Institute, Department of Forest Tree Breeding, D-3513 Stanfenberg-Eschorede, Federal Republic of Germany; 1982: 66-82.

Cecich, Robert A. Effect of weekly and bi-weekly spraying of $GA_{4/7}$ on flowering in jack pine seedlings. In: Thielges, Bart A., ed. Proceedings, 7th North American forest biology workshop; 1982 July 26-28; Lexington, KY. Lexington, KY: University of Kentucky, Department of Forestry; 1982: 292-297.

Clausen, Knud E. Age-age correlations in black walnut and white ash. In: Thielges, Bart A., ed. Proceedings, 7th North American forest biology workshop; 1982 July 26-28; Lexington, KY. Lexington, KY: University of Kentucky, Department of Forestry; 1982: 113-117.

Clausen, Knud E. Variation between and among English oak and white oak families in survival and early growth. In: Proceedings, 28th Northeastern forest tree improvement conference; 1982 July 7-9; Durham, NH. Durham, NH: University of New Hampshire, Institute of Natural and Environmental Resources; 1983: 60-67.

Comer, C. W.; Adams, Robert P.; Van Haverbeke, David F. Intra- and inter-specific variation of Juniperus virginiana and J. scopulorum seedlings based on volatile oil composition. Biochem. Syst. and Ecol. 10: 297-306; 1982.

Conkle, M. Thompson; Hodgskiss, Paul D.; Nunnally, Lucy B.; Hunter, Serena C. Starch gel electrophoresis of conifer seeds: a laboratory manual. Gen. Tech. Rep. PSW-64. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station; 1982. 18 p.

Copes, D. L. Field tests of graft compatible Douglas-fir seedling rootstocks. Silvae Genet. 31(5-6): 183-187; 1982.

Copes, D. L.; Randall, W. K. Tree shaker experience for Douglas-fir Beaver Creek seed orchard. In: Proceedings, Northwest Seed Orchard Managers Association; 1983 January 25-26; Portland, OR. Olympia, WA: Industrial Forestry Association Press; 1983: 34-35.

Copes, Donald L. Douglas fir rootstock and rootstock seed. Tree Improve. News. 43: 3-4; 1982.

Copes, Donald L. Effects of annual crown pruning and serial propagation on rooting of stem cuttings from Douglas-fir. Can. J. For. Res. 13(2): 419-424; 1983.

Demeritt, M. E., Jr. Planting and care of hybrid poplar. NE-INF-48-83. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1983. 9 p.

Demeritt, M.E., Jr. Six-year results of hybrid poplar clonal tests in Pennsylvania and Maryland. In: Proceedings, 28th Northeastern forest tree improvement conference; 1982 July 7-9; Durham, NH. Durham, NH: University of New Hampshire, Institute of Natural and Environmental Resources; 1983: 102-109.

Dhillon, Sukhraj S.; Miksche, Jerome P.; Cecich, Robert A. Microspectrophotometric applications in plant science research. In: Bechtel, D. B., ed. New frontiers in food microstructure. Held in conjunction with the annual meeting of the American Association of Cereal Chemists; 1982 October 26; San Antonio, TX. St. Paul, MN: American Association of Cereal Chemists; 1983: 27-70.

Dvorak,W. S.; Franklin, E. C.; Meskimen, George. Breeding strategy for E. robusta in southern Florida. In: Proceedings, 16th Southern forest tree improvement conference; 1981 May 27-28; Blacksburg, VA. Blacksburg, VA: Virginia Polytechnic Institute and State University; 1982: 116-122.

Fege, Anne S. The practice and physiological basis of collecting, storing and planting Populus hardwood cuttings. In: Hansen, Edward A., comp. Intensive plantation culture: 12 years research. Gen. Tech. Rep. NC-91. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1983: 1-11.

Ferguson, Robert B. Performance of willow clones on sharky clay. Res. Note SO-293. New Orleans, LA: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station; 1983. 3 p.

Funk, D. T.; Neely, D.; Bey, C. F. Genetic resistance to anthracnose of black walnut. Silvae Genet. 30(4-5): 115-117; 1981.

Funk, David T.; McBride, F. D.; Robinson, George L.; [and others]. Interactive effects of provenance and irrigation treatment on growth and anthracnose incidence of black walnut. In: Thielges, Bart A., ed. Proceedings, 7th North American forest biology workshop; 1982 July 26-28; Lexington, KY. Lexington, KY: University of Kentucky, Department of Forestry; 1982: 172-178.

Gabriel, W. J. Genetic improvement in sap-sugar production. In: Sugar maple research: sap production, processing and marketing of maple syrup. Gen. Tech. Rep. NE-72. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1982: 38-41.

Griggs, M. M.; Squillace, A. E. Inheritance of yellow oleoresin in shortleaf and slash pine. J. Hered. 73(6): 405-407; 1982.

Haissig, B. E. Separation of Pinus banksiana Lamb. glyceraldehyde 3-phosphate (NAD) dehydrogenase from phenolic-based pigments with affinity chromatography. Can. J. For. Res. 12(4): 1035-1038; 1982.

Haissig, Bruce E. Carbohydrate and amino acid concentrations during adventitious root primordium development in Pinus banksiana Lamb. cuttings. For. Sci. 28(4): 813-821; 1982.

Haissig, Bruce E. Influence of phenyl tryptophyl ether on adventitious root development in bean cuttings. Can. J. Bot. 61(5): 1548-1549; 1983.

Haissig, Bruce E. N-phenyl indolyl-3-butyramide and phenyl indole-3-thiolobutyrate enhance adventitious root primordium development. Physiol. Plant. 57: 435-440; 1983.

Harry, David E. Identification of a locus modifying the electrophoretic mobility of malate dehydrogenase isozymes in incense-cedar (Calocedrus decurrens), and its implications for population studies. Biochem. Genet. 21(5/6): 417-434; 1983.

Kang, Hyun. Components of a tree breeding plan. In: Proceedings, IUFRO joint meeting of working parties on genetics about breeding strategies including multiclonal varieties; 1982 September 6-10; Sensenstein, Germany. Sensenstein, Germany: Lower Saxony Forest Research Institute; 1982: 119-135.

Kang, Hyun. Founding concepts for tree breeding and research. In: Hansen, Edward A., comp. Intensive plantation culture: 12 years research. Gen. Tech. Rep. NC-91. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1983: 149-155.

Kinloch, Bohun B., Jr. Resistance to white pine blister rust in sugar pine: research at the Pacific Southwest Forest and Range Experiment Station. In: Breeding insect and disease resistant forest trees: Proceedings, Service-wide genetics workshop; 1982 July 19-23; Eugene, OR. Washington, DC: U.S. Department of Agriculture, Forest Service, Timber Management Staff; 1982: 86-91.

Kinloch, Bohun B., Jr. Vertical resistance. In: Breeding insect and disease resistant forest trees: Proceedings, Service-wide genetics workshop; 1982 July 19-23; Eugene, OR. Washington, DC: U.S. Department of Agriculture, Forest Service, Timber Management Staff; 1982: 284-291.

Knezick, D. Super trees invade New Jersey. New Jersey Outdoors 8(5): 18-19; 1981.

Kossuth, S. V.; Barnard, E. L. Slash pine rootstocks with low-phellandrene show high susceptibility to sand pine root disease. In: Thielges, Bart A., ed. Proceedings, 7th North American forest biology workshop; 1982 July 26-28; Lexington, KY. Lexington, KY: University of Kentucky, Department of Forestry; 1983: 435-439.

Kossuth, S. V.; Biggs, R. H. Resin content and cone opening in the apophysis and outer scale tissue of pines. In: Proceedings, 7th North American forest biology workshop; 1982 July 26-28; Lexington, KY. Lexington, KY: University of Kentucky, Department of Forestry; 1983: 248-254.

Kossuth, Susan V. Conelet loss in longleaf pine. Proceedings, Plant Growth Regulator Society of America: 9th annual meeting; 1982 July 5-9; Monterey, CA. Available from: Plant Growth Regulator Society of America, Lake Alfred, FL; 1982: 154-160.

Kraus, John F. A mating design based on a dodecahedron. In: Proceedings, IUFRO joint meeting of working parties on genetics about breeding strategies including multiclonal varieties; 1982 September 6-10; Sensenstein, Federal Republic of Germany; Lower Saxony Forest Research Institute, Department of Forest Tree Breeding, D-3513 Stangenberg-Eschored, Federal Republic of Germany; 1982: 66-82.

Kraus, John F. Fusiform rust resistance programs in the Southeast. In: Breeding insect and disease resistant forest trees: Proceedings, Service-wide genetics workshop; 1982 July 19-23; Eugene, OR. Washington, DC: U.S. Department of Agriculture, Forest Service, Timber Management Staff; 1982: 218-235.

Kraus, John F.; LaFarge, Timothy. Georgia's seed orchard trees. A report on the first-generation selections. Ga. For. Res. Pap. 37. Macon, GA: Georgia Forestry Commission; 1982. 11 p.

Ledig, F. Thomas; Conkle, M. Thompson. Gene diversity and genetic structure in a narrow endemic, Torrey pine (Pinus torreyana Parry ex Carr.). Evolution 37(1): 79-85; 1983.

Ledig, F. Thomas; Porterfield, Richard L. Tree improvement in western conifers: economic aspects. J. For. 80(10): 653-657; 1982.

Matthews, Frederick R.; Bramlett, David L. Pollen storage methods influence filled seed yields in controlled pollinations of loblolly pine. In: Jones, Earle P., Jr., ed. Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 441-445.

McKimmy, M. D.; Campbell, R. K. Genetic variation in the wood density and ring width trend in coastal Douglas-fir. Silvae Genet. 31(2-3): 43-51; 1982.

Millar, Constance I. A steep cline in Pinus muricata. Evolution 37(2): 311-319; 1983.

Montain, C. R.; Haissig, B. E.; Curtis, J. D. Differentiation of adventitious root primordia in callus of Pinus banksiana seedling cuttings. Can. J. For. Res. 13(1): 195-200; 1983.

Montain, C. R.; Haissig, B. E.; Curtis, J. D. Initiation of adventitious root primordia in very young Pinus banksiana seedling cuttings. Can. J. For. Res. 13(1): 191-195; 1983.

Namkoong, G. Challenging tree breeding theory. In: Proceedings, IUFRO joint meeting of working parties on genetics about breeding strategies including multiclonal varieties; 1982 September 6-10; Sensenstein, Federal Republic of Germany; Lower Saxony Forest Research Institute, Department of Forest Tree Breeding, D-3513 Stanfenberg-Eschorede, Federal Republic of Germany; 1982: 155-166.

Namkoong, G. Diminishing genetic resources: no eleventh hour reprieve. Res. Perspect. 1. Raleigh, NC: North Carolina State University, Agricultural Research Services; 1982: 18-19.

Namkoong, G. The management of genetic resources: a neglected problem in environmental ethics. Environ. Ethics 4: 377-378; 1982.

Namkoong, G.; Roberds, J. H. Short-term loss of neutral alleles in small-population breeding. Silvae Genet. 31(1): 1-6; 1982.

Nienstaedt, H.; Fowler, D. P. The hybrid white spruce x Himalayan spruce. Res. Note NC-284. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 5 p.

Nienstaedt, Hans; Kang, Hyun. A budget tree improvement program. Res. Note NC-294. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1983. 3 p.

Outcalt, Kenneth W. A comparison of sand pine varieties in central Florida. South. J. Appl. For. 7(1): 58-59; 1983.

Outcalt, Kenneth W. Mechanical site preparation improves growth of genetically improved and unimproved slash pine on a Florida site. In: Jones, Earle P., Jr., ed. Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 11-13.

Pepper, W. D. Choosing plant-mating design allocations to estimate genetic variance components in the absence of prior knowledge of the relative magnitudes. Biometrics 39: 511-521; 1983.

Read, Ralph A.; Sprackling, John A. Flowering in a ponderosa pine provenance plantation in eastern Nebraska. Res. Note RM-423. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1983. 6 p.

Rehfeldt, G. E. Seed transfer guidelines for Douglas-fir in western Montana. Res. Note INT-329. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 3 p.

Rehfeldt, G. E. Seed transfer guidelines for western larch in the Northern Rocky Mountains. Res. Note INT-331. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 3 p.

Rehfeldt, G. E.; Wells, S. P.; Woo, J. Y. Chromosomal imbalances in Douglas-fir (Pseudotsuga menziesii). Can. J. Gen. Cytol. 25(2): 113-116; 1983.

Rehfeldt, Gerald E. Differentiation of Larix occidentalis populations. Silvae Genet. 31(1): 13-19; 1982.

Riemenschneider, Don E. Jack pine: creating an alternative for the future. In: Mroz, Glenn D.; Berner, Jane F., comp. Proceedings, Artificial regeneration of conifers in the Upper Great Lakes Region; 1982 October 26-28; Green Bay, WI. Houghton, MI: Michigan Technological University; 1982: 173-184.

Riemenschneider, Don E.; Nienstaedt, Hans. Height growth to age 8 of larch species and hybrids in Wisconsin. Res. Pap. NC-239. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1983. 6 p.

Rink, George; Funk, David T.; Williams, Robert D.; [and others]. Provenance more important than nursery environment to survival and growth of black walnut. In: Thielges, Bart A., ed. Proceedings, 7th North American forest biology workshop; 1982 July 26-28; Lexington, KY. Lexington, KY: University of Kentucky, Department of Forestry; 1982: 152-159.

Roberds, J. H.; Namkoong, G. Testing selective neutrality for isozyme genes in loblolly pine and Nantucket pine tip moth populations. In: Thielges, Bart A., ed. Proceedings, 7th North American forest biology workshop; 1982 July 26-28; Lexington, KY. Lexington, KY: University of Kentucky, Department of Forestry; 1982: 188-196.

Rockwood, D. L.; Geary, T. F. Genetic variation in biomass productivity and coppicing of intensively grown Eucalyptus grandis in southern Florida. In: Thielges, Bart A., ed. Proceedings, 7th North American forest biology workshop; 1982 July 26-28, Lexington, KY. Lexington, KY: University of Kentucky, Department of Forestry; 1982: 400-405.

Rockwood, D. L.; Geary, T. F.; Bourgeron, P. S. Planting density and genetic influences on seedling growth and coppicing of eucalyptus in southern Florida. In: Proceedings, 1982 Southern forest biomass working group workshop; 1982 June 16-18; Alexandria, LA. Baton Rouge, LA: Louisiana State University; 1982: 95-102.

Rockwood, Donald L.; Meskimen, George. Genetic spacing, and genotype x spacing influences on growth of Eucalyptus grandis in south Florida. In: Proceedings, 16th Southern forest tree improvement conference; 1981 May 27-28; Blacksburg, VA. Blacksburg, VA: Virginia Polytechnic Institute and State University; 1982: 77-85.

Rudolph, T. D.; Yeatman, C. W. Genetics of jack pine. Res. Pap. WO-38. Washington, DC: U.S. Department of Agriculture, Forest Service; 1982. 60 p.

Schmidtling, R. C. Influence of interstock on flowering and growth of loblolly pine grafts. Tree Plant. Notes 33(1): 30-32; 1983.

Schmidtling, R. C. Rootstock influences flowering, growth, and survival of loblolly pine grafts. For. Sci. 29(1): 117-124; 1983.

Schmidtling, R. C. The inheritance of precocity and its relationship with growth in loblolly pines. Silvae Genet. 30(6): 405-407; 1982.

Schmidtling, R. C. Timing of fertilizer application important for management of southern pine seed orchards. South J. Appl. For. 7(2): 76-81; 1983.

Schmidtling, R. C.; Amburgey, T. Genetic variation in decay susceptibility and its relationship to growth and specific gravity in loblolly pine. Holzforschung 36(3): 159-161; 1982.

Silen, Roy R.; Mandel, Nancy L. Clinal genetic growth variation within two Douglas-fir breeding zones. J. For. 81(4): 216-220; 1983.

Silen, Roy. Full-sib and clonal seed orchards. Tree Improve. News 43: 4-6; 1982.

Silen, Roy; Wanek, Jack; Mandel, Nancy. An early appraisal of seed orchard seed. Tree Improv. News. No. 44: 2-3; 1983.

Solomon, Dale S. Identification of hybridization in Betula. In: Thielges, Bart A., ed. Proceedings, 7th North American forest biology workshop; 1982 July 26-28; Lexington, KY. Lexington, KY: University of Kentucky, Department of Forestry; 1982: 197-202.

Solomon, Dale S. Use of discriminant equations to classify birch in the northeast. In: Proceedings, 28th Northeastern forest tree improvement conference; 1982 July 7-9; Durham, NH. Durham, NH: University of New Hampshire, Institute of Natural and Environmental Resources; 1983: 77-93.

Solomon, Dale S.; Kenlan, K. W. Discriminant analysis of Interspecific hybridization in Betula. Silvae Genet. 31(4):136-145; 1982.

Somers, Peter W.; VanSambeek, J. W.; Preece, John E.; [and others]. In vitro micropropagation of black walnut (Juglans nigra L.). In: Thielges, Bart A., ed. Proceedings, 7th North American forest biology workshop; 1982 July 26-28; Lexington, KY. Lexington, KY: University of Kentucky, Department of Forestry; 1982: 224-230.

Sorensen, Frank C. Geographic variation in seedling Douglas-fir (Pseudotsuga menziesii) from the western Siskiyou Mountains of Oregon. Ecology 64(4): 696-702; 1983.

Sorensen, Frank C. Relationship between logarithms of chilling period and germination or bud flush rate is linear for many tree species. For. Sci. 29(2): 237-240; 1983.

Sorensen, Frank C. The roles of polyembryony and embryo viability in the genetic system of conifers. Evolution 36(4): 725-733; 1982.

Squillace, A. E. Inheritance of monoterpene composition in conifers. In: Khosla, P. K., ed. Advances in forest genetics. New Dehli, India: Ambika Publ.; 1981: 296-310.

Strauss, Steven H.; Critchfield, William B. Inheritance of ?-pinene in xylem oleoresin of knobcone X Monterey pine hybrids. For. Sci. 28(4): 687-696; 1982.

Talbert, J. T.; Bridgwater, F. E.; Jett, J. B.; Jahromi, S. Genetic parameters of wood specific gravity in a control pollinated loblolly pine genetic test. In: Proceedings, TAPPI research and development conference; 1982 August 29-September 1; Asheville, NC. Atlanta, GA: TAPPI Press; 1982: 179-182.

Van Haverbeke, David F. Seventeen-year performance of Pinus flexilis and P. strobiformis progenies in eastern Nebraska. Silvae Genet. 32(2): 71-76; 1983.

Wells, O. O.; Lambeth, C. C. Loblolly pine provenance test in southern Arkansas 25th year results. South. J. Appl. For. 7(2): 71-75; 1983.

Wells, O. O.; Schmidtling, R. C. A study of the growth, yield, and pest resistance of shortleaf x slash pine hybrids. Res. Note SO-291. New Orleans, LA: U.S. Department of Agriculture, Southern Forest Experiment Station; 1983. 5 p.

Wells, Osborn O. Southwide pine seed source study--loblolly pine at 25 years. South. J. Appl. For. 7(2): 63-70; 1983.

Wells, Osborn O.; Switzer, George L.; Nance, Warren L. Genotype- environment interaction in rust resistance in Mississippi loblolly pine. For. Sci. 28(4): 797-809; 1982.

Whitmore, J. L. Eucalyptus deglupta, E. urophylla and E. alba provenances tested in Puerto Rico. In: Whitmore, J. L., ed. Wood production in the neotropics via plantations: Proceedings of the symposium, IUFRO Working Group S1-07-09; 1980 September 8-12; Rio Piedras, PR. Washington, DC: IUFRO/MAB/U.S. Department of Agriculture, Forest Service; 1981; 379-385.

Whitmore, J. L.; de Barros, N. F. Pinus kesiya and P. merkusii provenance trial in Puerto Rico. In: Whitmore, J. L., ed. Wood production in the neotropics via plantations: Proceedings of the symposium, IUFRO Working Group S1-07-09; 1980 September 8-12; Rio Piedras, PR. Washington, DC: IUFRO/MAB/U.S. Department of Agriculture, Forest Service; 1981: 368-378.

Wilkinson, R. C. A re-examination of the relationship between bark thickness and susceptibility of eastern white pine to white-pine weevil attack. In: Proceedings, 28tn Northeastern forest tree improvement conference; 1982 July 7-9; Durham, NH. Durham, NH: University of New Hampshire, Institute of Natural and Environmental Resources; 1983: 134-139.

Wilkinson, R. C. Leader and growth characteristics of eastern white pine associated with white-pine weevil attack susceptibility. Can. J. For. Res. 13(1): 78-84; 1983.

Wilkinson, R.C. Seed source variation in susceptibility of eastern white pine to white-pine weevil attack. In: Proceedings, 28th Northeastern forest tree improvement conference; 1982 July 7-9; Durham, NH. Durham, NH: University of New Hampshire, Institute of Natural and Environmental Resources; 1983: 126-133.

Yawney, Harry W.; Donnelly, John R. Rooting and over-wintering sugar maple cuttings. In: Sugar maple research: sap production, processing, and marketing of maple syrup. Gen. Tech. Rep. NE-72. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1982: 61-70.

Special Products

Carl, C. M., Jr. Nursery practices. In: Sugar maple research: sap production, processing, and marketing of maple syrup. Gen. Tech. Rep. NE-72. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1982: 47-52.

Carl, C. M., Jr. Seed collection and handling. In: Sugar maple research; sap production, processing and marketing of maple syrup. Gen. Tech. Rep. NE-72. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1982: 42-46.

Duchacek, H.; Sendak, P. E.; Laing, F. M. Commercial-scale tubular maple sap evaporator: operation and economics. Res. Rep. 31. Burlington, VT: University of Vermont Agricultural Experiment Station; 1982. 16 p.

Gabriel, William J. Mini-tapping maples for sap-sugar testing. Res. Note NE-305. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1982. 4 p.

Garrett, Lawrence D. Efficiency of wood-fueled evaporators. In: Sugar maple research: sap production, processing, and marketing of maple syrup. Gen. Tech. Rep. NE-72. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1982: 83-86.

Garrett, Lawrence D.; Huyler, Neil K.; Sendak, Paul E. Improvements in sap processing techniques. In: Sugar maple research: sap production, processing, and marketing of maple syrup. Gen. Tech. Rep. NE-72. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1982: 87-97.

Gregory, Robert A. Release of sap sugar and control of sap pressure. In: Sugar maple research: sap production, processing, and marketing of maple syrup. Gen. Tech. Rep. NE-72. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1982: 1-7.

Gregory, Robert A.; Hawley, Gary J. Sap extraction and measurement of soluble sugars in sugar maple. Can J. For. Res. 13(2): 400-404; 1983.

Huyler, Neil K. Sap collection systems. In: Sugar maple research: sap production, processing, and marketing of maple syrup. Gen. Tech. Rep. NE-72. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1982: 71-78.

Huyler, Neil K. The economics of open-pan evaporators. In: Sugar maple research: sap production, processing, and marketing of maple syrup. Gen. Tech. Rep. NE-72. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1982: 79-82.

Kossuth, Susan V.; Roberts, Donald R.; Huffman, Jacob B.; Wang, Shih-Chi. Resin acid, turpentine, and caloric content of paraquat-treated slash pine. Can. J. For. Res. 12(3): 489-492; 1982.

Morselli, M. F.; Whalen, M. L.; Baggett, K. L.; Sendak, P. E. Quality of syrup produced from sap concentrated by reverse osmosis (RO). Maple Syrup J. (June): 18; 1982.

Roberts, D. R.; Williams, I. L.; Kossuth, S. V. Double application of paraquat for production of lightwood with high oleoresin content. For. Prod. J. 32(10): 74-78; 1982.

Sendak, P. E. Effect of oxygen, carbon dioxide, and nitrogen on maple syrup stored in plastic jugs. J. Food Sci. 47(5): 1741-1742; 1982.

Sendak, Paul E. Consumer attitudes about pure maple syrup. In: Sugar maple research: sap production, processing, and marketing of maple syrup. Gen. Tech. Rep. NC-72. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1982: 103-106.

Sendak, Paul E. Retail containers for pure maple syrup. In: Sugar maple research: sap production, processing, and marketing of maple syrup. Gen. Tech. Rep. NE-72. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1982: 107-108.

Sendak, Paul E.; Jenkins, W. Lyman. Market structure of the maple industry and syrup grading standards. In: Sugar maple research: sap production, processing, and marketing of maple syrup. Gen. Tech. Rep. NE-72. Broomall, PA: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982: 98-102.

Walters, Russell S.; Yawney, Harry W. Sugar maple tapholes. In: Sugar maple research: sap production, processing, and marketing of maple syrup. Gen. Tech. Rep. NE-72. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1982: 8-15.

Walters, Russell, S.; Yawney, Harry W. Installation of pipelines correctly. Natl. Maple Syrup Dig. 22(3): 25-28; 1982.

Yawney, Harry W. Planting sugar maple. In: Sugar maple research: sap production, processing, and marketing of maple syrup. Gen. Tech. Rep. NE-72. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1982: 53-60.

Resource Economics

Forest Resource Evaluation

Alig, Ralph J.; Brink, Glen E.; Goforth, Marcus H.; [and others]. TRAS-1980: user's manual for an expanded version of the TRAS projection system. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1982. 63 p.

Anderson, R. L.; Birdsey, R. A.; Barry, P. J. Incidence of damage and cull in Puerto Rico's timber resource, 1980. Resour. Bull. SO-88. New Orleans, LA: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station; 1982. 13 p.

Anderson, Robert L.; McClure, J. P.; Cost, N. D.; Hoffard, W. H. Incidence and impact of damage to Florida's timber, 1980. Resour. Bull. SE-64. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983. 20 p.

Baker, R. L.; Thomas, C. E. A point frame for circular plots in southern forest-ranges. J. Range Manage. 36(1): 121-123; 1983.

Barnard, Joseph. Maine's hardwood resource. In: Proceedings, Hardwood forest management and utilization symposium; 1983 February; Orono, ME. Misc. Rep. 279. Orono, ME: University of Maine Agricultural Experiment Station; 1983: 4-5.

Bechtold, W. A.; Phillips, D. R. The hardwood resource on nonindustrial private land in the Southeast Piedmont. Res. Pap. SE-236. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983. 19 p.

Birch, Thomas W. The forest-land owners of Ohio - 1979. Resour. Bull. NE-74. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1982. 84 p.

Birch, Thomas W. Who's woods are these?--7.8 million private forest-land owners. Crossties 64(3): 13-14, 16, 18; 1983.

Birch, Thomas W.; Lewis, Douglas G.; Kaiser, H. Fred. The rivate forest-land owners of the United States. Resour. Bull. WO-1. Washington, DC: U.S. Department of Agriculture, Forest Service; 1982. 64 p.

Birdsey, R. A. Tennessee forest resources. Resour. Bull. SO-90. New Orleans, LA: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station; 1983. 35 p.

Birdsey, R. A.; Weaver, P. L. The forest resources of Puerto Rico. Resour. Bull. SO-85. New Orleans, LA: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station; 1982. 59 p.

Blyth, James E.; McGuire, Donald H.; Smith, W. Brad. Primary forest products industry and timber use, Indiana, 1980. Resour. Bull. NC-65. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 25 p.

Blyth, James E.; Smith, W. Brad. Pulpwood production in the Lake States by county, 1981. Res. Note NC-287. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 4 p. Station; 1982. 25 p.

Blyth, James E.; Smith, W. Brad. Pulpwood production in the Lake States by county, 1981. Res. Note NC-287. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 4 p.

Blyth, James E.; Smith, W. Brad. Pulpwood production in the North-Central Region by county, 1980. Resour. Bull. NC-59. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 21 p.

Blyth, James E.; Widmann, Richard H. Pulpwood production in the Northeastern and North Central states in 1981. North. Logger and Timber Process. 31(9): 10-11; 1983.

Blyth, James E.; Zollner, Jack; Smith, W. Brad. Michigan saw log production and sawmill industry, 1978. Res. Note NC-276. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 4 p.

Bolsinger, Charles L. An overview of current forest resources and trends in the eastside pine type of California. In: Robson, Thomas F.; Standiford, Richard B., eds. Management of the eastside pine type in northeastern California: Proceedings of a symposium; 1982 June 15-17; Susanville, CA. SAF 83-06. Arcata, CA: Northern California Society of American Foresters; 1983: 29-38.

Bones, James T.; Wharton, Eric H. Physical availability of tree biomass for energy. In: Hill, Richard F., ed Energy technology X; a decade of progress: Proceedings, 10th energy technology conference; 1983 February 28-March 2; Washington, DC: Government Institutes, Inc.; June 1983: 1315-1321.

Burk, Thomas E.; Hansen, Mark H.; Ek, Alan R. Combining sources of information for improved in-place inventory statistics. In: Brann, Thomas B.; House, Louis O., IV; Land, H. Gyde, eds. Proceedings, National workshop on in-place resource inventories: principles and practices; 1981 August 9-14; Orono, ME. SAF 82-02. Washington, DC: Society of American Foresters; 1982: 413-420.

Casti, J. Forest monitoring and harvesting policies. Appl. Math. and Comput. 12: 19-48; 1983.

Castonguay, Thomas L. Forest area in eastern South Dakota, 1980. Res. Note NC-291. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 4 p.

Castonguay, Thomas L. Timber volume in North Dakota counties, 1980. Res. Note NC-288. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 4 p.

Clark, Alexander, III. Total biomass cruise program--a management tool for small forest landowners. In: Wood energy--a forest management tool for small landowners: proceedings, 1982 wood energy conference; 1982 May 18-20; Rome, GA. Macon, GA: Georgia Forestry Commission; 1983: 73-76.

Clark, Alexander, III; Phillips, Douglas R.; Frederick, Douglas J. Biomass distribution and production of Coastal Plain hardwood stands. In: Energy from biomass and wastes: proceedings of Institute of Gas Technology symposium; 1983 January 24-28; Lake Buena Vista, FL. Chicago, IL: Institute of Gas Technology; 1983: 101-115.

Considine, Thomas J., Jr. New York's third forest survey. North. Logger and Timber Process. 31(4): 6-7, 26-27; 1982.

Considine, Thomas, Jr. Wildlife needs private forest land management. Penn. Game News 54(3): 14-17; 1983.

Cunia, T.; Michelakackis, J. On the error of tree biomass tables constructed by a two-phase sampling design. Can. J. For. Res. 13(2): 303-313; 1983.

Davenport, Edgar L. Interstate movement of round pulpwood in the Southeast, 1976-1980. Res. Note SE-320. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983. 13 p.

Dennis, Donald F. An analysis of Ohio's forest resources. Resour. Bull. NE-75. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1983. 46 p.

Driscoll, Richard S.; Merkel, Daniel L.; Hagihara, James S.; Radloff, David L. A component land classification for the United States: status report. Tech. Note 360. Denver, CO: U.S. Department of the Interior, Bureau of Land Management; 1983. 30 p.

Felt, Dorothy G.; Sterrett, Velma J. Forest area and timber resource statistics for State and private lands in southwestern Montana, 1978. Resour. Bull. INT-28. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 30 p.

Felt, Dorothy G.; Sterrett, Velma J. Forest area and timber resource statistics for State and private lands in New Mexico, 1980. Resour. Bull. INT-32. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 29 p.

Garrett, Lawrence D.; Rogers, James J.; Prosser, Joseph M. Multiresource inventory and analysis systems: gaining maximum benefit for land managers. In: Brann, Thomas B.; House, Louis O., IV; Land, H. Gyde, eds. Proceedings, National workshop on in-place resource inventories: principles and practices; 1981 August 9-14; Orono, ME. SAF 82-02. Bethesda, MD: Society of American Foresters; 1982: 1011-1017.

Gedney, Donald R. The privately owned timber resources of western Oregon. Resour. Bull. PNW-99. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1983. 29 p.

Green, Alan W.; Van Hooser, Dwane D. Forest resources of the Rocky Mountain States. Resour. Bull. INT-33. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 127 p.

Hackett, Ronald L. Timber volume in eastern South Dakota, 1980. Res. Note NC-282. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 6 p.

Hahn, Jerold T. Timber resource of Michigan's Southern Lower Peninsula, 1980. Resour. Bull. NC-66. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 119 p.

Hahn, Jerold T.; Miller, Nancy L.; Essex, Burton L. Application of growth simulation and small format photography to forest resource inventories. In: Brann, Thomas B.; House, Louis O., IV; Land, H. Gyde, eds. Proceedings, National workshop on in-place resource inventories: principles and practices; 1981 August 9-14; Orono, ME. SAF Publ. 82-02. Bethesda, MD: Society of American Foresters; 1982: 947-950.

Hawkes, Clifford L. A conceptual framework of procedures to support national assessments of renewable resources. In: Armentrout, N. B., ed. Proceedings, Acquisition and utilization of aquatic habitat inventory information symposium; 1981 October 28-30; Portland, OR. [Place of publication unknown]: Western Division of the American Fisheries Society; [1983]: 10-16.

Hawkes, Clifford L.; Chalk, David E.; Hoekstra, Thomas W.; Flather, Curtis H. Prediction of wildlife and fish resources for national assessments and appraisals. Gen. Tech. Rep. RM-100. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1983. 30 p.

Hegg, Karl M. Timber resource statistics for the upper Tanana block, Tanana inventory unit, Alaska, 1974. Resour. Bull. PNW-100. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1983. 34 p.

Hoekstra, Thomas W.; Chalk, David E.; Hawkes, Clifford L.; Miller, Stephen A. Monitoring regional wildlife and fish habitat and populations for national assessments and appraisals: Transactions, 48th North American wildlife and natural resources conference; 1983 March 20-23; Kansas City, MO. Washington, DC: Wildlife Management Institute; 1983: 308-314.

Hof, John G.; Joyce, Linda A.; Alward, Gregory S.; Hoekstra, Thomas W. Multilevel analysis of forest and rangeland resources. In: Wagstaff, F., ed. Proceedings, Range economics symposium; 1982 August 31-September 2; Salt Lake City, UT. Gen. Tech. Rep. INT-149. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983: 43-49.

Hutchins, Cecil C., Jr. Pulpwood prices in the Southeast, 1981. Res. Note SE-319. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983. 3 p.

Hutchins, Cecil C., Jr. Southern pulpwood production, 1981. Resour. Bull. SE-66. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1982. 24 p.

Jakes, Pamela J. Timber resource of Michigan's Northern Lower Peninsula, 1980. Resour. Bull. NC-62. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 120 p.

Jakes, Pamela J.; Bertsch, Robin; Smith, W. Brad. Looking ahead at Michigan's timber harvest. North. Logger and Timber Process. 31(3): 10, 38; 1982.

Joyce, L. A.; McKinnon, B.; Jof, J. G.; Hoekstra, T. W. Analysis of multiresource production for national assessments and appraisals. Gen. Tech. Rep. RM-101. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1983. 20 p.

Joyce, Linda A. Multiresource production at the regional level. In: Wagstaff, F., ed. Proceedings, Range economics symposium; 1982 August 31-September 2; Salt Lake City, UT. Gen. Tech. Rep. INT-149. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983: 50-56.

Keegan, Charles E., III; Jackson, Timothy P.; Johnson, Maxine C. Idaho's forest products industry: a descriptive analysis, 1979. Missoula, MT: University of Montana, Bureau of Business and Economic Research; 1982. 98 p.

Keegan, Charles E., III; Jackson, Timothy P.; Johnson, Maxine C. Montana's forest products industry: a descriptive analysis 1981. Missoula, MT: University of Montana, Bureau of Business and Economic Research; 1983. 85 p.

Kingsley, Neal P.; Spencer, John S. Resources evaluation inventories in the North: What they are and what they can do. North. Logger and Timber Process. 31(5): 16-17, 31; 1982.

LaBau, Vernon J. Principles of analysis and information management systems. In: Brann, Thomas B.; House, Louis O., IV; Land, H. Gyde, eds. Proceedings, National workshop on in-place resource inventories: principles and practices; 1981 August 9-14; Orono, ME. SAF 82-02. Bethesda, MD: Society of American Foresters; 1982: 434.

LaBau, Vernon J.; van Hees, Willem W. S. Timber resource statistics for the Juneau inventory unit, Alaska, 1970. Resour. Bull. PNW-98. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1983. 30 p.

Marshall, Norman L.; Patten, Bryant M. II; Skog, Kenneth. The hynamics of residential wood-energy use in the United States: 1970-2030. DSD 477. Hanother, NH: Dartmouth College, Thayer School of Engineering; 1983. 110 p.

Meyer, M.; Miller, N.; Hackett, R. Application of 35mm aerial photography to forest land use change analysis in the Upper Peninsula of Michigan. IAFHE RSL Res. Rep. 81-2. St. Paul, MN: University of Minnesota's Agricultural Experiment Station and College of Forestry; 1981. 19 p.

Montana Department of State Lands. Timber resources of Mineral, Missoula and Ravalli Counties. Missoula, MT: Montana Department of State Lands, Forestry Division; U.S. Department of Agriculture, Intermountain Forest and Range Experiment Station, Forest Survey, and Northern Region; 1983. 197 p.

Nevel, Robert L., Jr.; Blyth, James E. Veneer log production in the Northeastern and North Central States in 1980. North. Logger and Timber Process. 31(11): 40-41; 1983.

Nevel, Robert L., Jr.; Sochia, Everett L.; Wahl, Thomas H. New York timber industries - a periodic assessment of timber output. Resour. Bull. NE-73. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1982. 30 p.

Nevel, Robert L., Jr.; Widmann, Richard H. Pulpwood production and receipts in the Northeast, 1980: a statistical report. Resour. Bull. NE-72. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1982. 23 p.

Ostrom, Arnold J. Forest area in Michigan, 1980. Res. Note NC-289. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 4 p.

Ostrom, Arnold J. Timber volume in Michigan, 1980. Res. Note NC-290. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 4 p.

Raile, Gerhard K. Estimating stump volume. Res. Pap. NC-224. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 4 p.

Raile, Gerhard K.; Hahn, Jerold T. The extent and characteristics of low productivity aspen areas in Minnesota. Resour. Bull. NC-61. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 36 p.

Raile, Gerhard K.; Jakes, Pamela J. Tree biomass in the North Central Region. Res. Pap. NC-220. St. Paul, MN: Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 22 p.

Rudis, V. A. Pulpwood production in the South--1980 figures. For. Farmer 42(2): 14, 31-32; 1982.

Rudis, V. A. Southern pulpwood production, 1980. Resour. Bull. SO-84. New Orleans, LA: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station; 1982. 22 p.

Schreuder, Hans T.; Bhattacharyya, H. T.; McClure, J. P. SBBB distribution: a potentially useful trivariate distribution. Can. J. For. Res. 12(3): 641-645; 1982.

Sheffield, Raymond M.; Knight, Herbert A. Loblolly pine resource--southeast region. In: Loblolly pine ecosystem (East Region): proceedings of the symposium; 1982 December 8-10; Raleigh, NC. Raleigh, NC: North Carolina State University, School of Forest Resources; 1983: 7-24.

Sheffield, Raymond M.; Tansey, John B. Forest statistics for Central Georgia, 1982. Resour. Bull. SE-65. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1982. 32 p.

Skog, Kenneth E.; Watterson, Irene A. Residential fuelwood use in the United States: 1980-81. Survey completion report. NTIS No. ADA131724. Springfield, VA: U.S. Department of Commerce; National Technical Information Services; 1983. 154 p.

Smith, W. Brad. Timber resource of Michigan's Eastern Upper Peninsula, 1980. Resour. Bull. NC-64. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 103 p.

Smith, W. Brad; Weist, Carol A. A net volume equation for Indiana. Resour. Bull. NC-63. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 7 p.

Spencer, John S., Jr. Timber resource of Michigan's Western Upper Peninsula, 1980. Resour. Bull. NC-60. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 102 p.

Sterrett, Velma J.; Felt, Dorothy G. Forest area and timber resource statistics for State and private lands in McKinley, San Juan, and Valencia Counties, New Mexico, 1979. Resour. Bull. INT-31. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 22 p.

Sterrett, Velma J.; Felt, Dorothy G. Forest area and timber resource statistics for State and private lands in the Headwater Counties of Montana, 1978. Resour. Bull. INT-27. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 27 p.

Tansey, John B. Forest statistics for Georgia, 1982. Resour. Bull. SE-69. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983. 50 p.

Tansey, John B. Forest statistics for North Central Georgia, 1983. Resour. Bull. SE-67. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983. 30 p.

Tansey, John B. Forest statistics for North Georgia, 1983. Resour. Bull. SE-68. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983. 29 p.

Thomas, C. E.; Bylin, C. V. Louisiana mid-cycle survey shows change in forest resource trends. Resour. Bull. SO-86. New Orleans, LA: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station; 1982. 33 p.

U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station. Forest statistics for north central Alabama counties Resour. Bull. SO-96. New Orleans, LA; 1983. 15 p.

U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station. Forest statistics for north Alabama counties. Resour. Bull SO-95. New Orleans, LA; 1983. 15 p.

U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station. Forest statistics for southeast Alabama counties. Resour. Bull. SO-94. New Orleans, LA; 1983. 18 p.

U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station. Forest statistics for west central Alabama counties. Resour. Bull. SO-93. New Orleans, LA; 1983. 15 p.

U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station. Forest statistics for southwest-north Alabama counties. Resour. Bull. SO-92. New Orleans, LA; 1983. 15 p.

U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station. Forest statistics for southwest-south Alabama counties. Resour. Bull. SO-91. New Orleans, LA; 1983. 15 p.

U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station. Forest statistics for Tennessee counties. Resour. Bull. SO-89. New Orleans, LA; 1982. 64 p.

U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station. Forest statistics for east Tennessee counties. Resour. Bull. SO-87. New Orleans, LA; 1982. 22 p.

van Hees, Willem W. S.; LaBau, Vernon J. Timber resource statistics for the Petersburg/Wrangell inventory unit, Alaska 1972. Resour. Bull. PNW-102. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1983. 36 p.

van Hees, Willem W. S.; LaBau, Vernon J. Timber resource statistics for the Sitka inventory unit, Alaska, 1971. Resour. Bull. PNW-101. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1983. 35 p.

Van Hooser, Dwane D.; Chojanacky, David C. Whole tree volume estimates for the Rocky Mountain States. Resour. Bull. INT-29. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 69 p.

Van Hooser, Dwane D.; Green, Alan W. Utah's forest resources, 1978. Resour. Bull. INT-30. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 58 p.

Van Hooser, Dwane D.; LaBau, Vernon J. Compilation of the 1980 national RPA timber assessment data base. In: Brann, Thomas B.; House, Louis O., IV; Land, H. Gyde, eds. Proceedings, National workshop on in-place resource inventories: principles and practices; 1981 August 9-14; Orono, ME. SAF 82-02. Bethesda, MD: Society of American Foresters; 1982: 985-990.

Vilkas, Ann; Nolley, Jean W. Delaware's secondary wood industry: a utilization summary and directory. Dover, DE: Department of Agriculture and Delaware Forest Service; 1981. 19 p.

Wharton, Eric H. Recovery of above ground biomass in Ohio, 1978. Res. Note NE-310. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1982. 6 p.

Wharton, Eric H.; Bones, James T. Biomass assessment of the above ground wood resource. In: Robertson, Doris, proc. coord. Proceedings, 6th International FPRS industrial wood forum '82; 1982 March 8-10; Washington, DC. Madison, WI: Forest Products Research Society; 1983: 106-109. Vol. 1 of Proceedings 7334.

Widmann, Richard H. Pulpwood production in the Northeast--1981. Resour. Bull. NE-76. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1983. 23 p.

Yarie, John; Mead, Delbert R. Above ground tree biomass on productive forest land in Alaska. Res. Pap. PNW-298. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1982. 16 p.

Forest Resource Economics

Adams, Darius M.; Haynes, Richard W. The distributional impacts of departures: groups and regions. In: LeMaster, Dennis C.; Baumgartner, David M.; Adams, David, eds. Sustained yield: Proceedings of a symposium; 1982 April 27-28; Spokane, WA. Pullman, WA: Washington State University; 1982: 99-108.

Alward, G. S.; Palmer, C. J. IMPLAN: an input-output analysis system for Forest Service planning. In: Seppala, Risto; Row, Clark; Morgan, Ann, eds. Forest sector models: Proceedings, 1st North American conference; 1981 December 2-4; Williamsbrug, VA. London: AB Acad. Publ. 1983: 131-140.

Anderson, W.C. Resource management on a city watershed forest. In: Duerr, W. A.; Teeguarden, D. E.; Christiansen, N. B.; Guttenberg, Sam, eds. Forest resource management. Rev. ed. Corvallis, OR: OSU Book Stores; 1982: 505-513.

Bell, Enoch F. Programs and priorities in federal forest economics research. In: Granskog, James E.; Haney, Harry L., Jr., eds. How to cope with hard times: Proceedings, Southern forest economics workshop; 1982 April 1-2; Charleston, SC. Raleigh, NC: Southern Forest Economics Workers; 1982; 58-63.

Bell, Enoch; Bergsvik, Karl. Current harvest practices by the Forest Service. In: LeMaster, Dennis C.; Baumgartner, David M.; Adams, David, eds. Sustained yield: proceedings of a symposium; 1982 April 27-28; Spokane, WA. Pullman, WA: Washington State University Cooperative Extension; 1982: 61-65.

Bonyai, Susan A.; Sendak, Paul E. Vermont's timber economy: a review of the statistics. Montpelier, VT: Agency of Environmental Conservation, Department of Forests, Parks, and Recreation; 1982. 27 p.

Boyd, Roy. Lumber transport and the Jones Act: multi-community special equilibrium analysis. Bell J. Econ. 14(1): 202-212; 1983.

Bradley, Dennis P.; Lothner, David C. Financial returns from growing red pine and loblolly pine using new yield evidence. In: Mroz, Glenn D.; Berner, Jane F., comp. Proceedings, Artificial regeneration of conifers in the Upper Great Lakes Region; 1982 October 26-28; Green Bay, WI. Houghton, MI: Michigan Technological University; 1983: 345-357.

Brown, Thomas C. Monetary valuation of timber, forage, and water yields from public forest lands. Gen. Tech. Rep. RM-95. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station; 1982. 26 p.

Buongiorno, Joseph, Kang, Young Moo. Econometric models of U.S. demand for paper and paperboard. Wood Sci. 15(2): 119-126; 1982.

Buongiorno, Joseph; Farimani, Merhdad; Wu-Jen. Econometric model of price formation in the United States paper and paperboard industry. Wood Fiber Sci. 15(1): 28-39; 1983.

Connaughton, Kent P.; Haynes, Richard W. An evaluation of three simplified approaches to modeling the regional demand for National Forest stumpage. For. Sci. 29(1): 3-12; 1983.

Cubbage, F. W. Economies of forest tract size in southern pine harvesting. Res. Pap. SO-184. New Orleans, LA: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station; 1982. 27 p.

Cubbage, F. W. Economies of forest tract size: theory and literature. Gen. Tech. Rep. SO-41. New Orleans, LA: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station; 1983. 21 p.

Cubbage, F. W. Harvesting productivity information for southern pines. South. J. Appl. For. 7(3): 128-134; 1983.

Cubbage, F. W. Simulated effects of productivity rates, input costs and stand volumes on harvesting costs. For. Prod. J. 33(2): 50-56; 1983.

Cubbage, F. W. Tract size and harvesting costs in southern pine. J. For. 81(7): 430-432, 478; 1983.

Dale, Larry. The development of copper deposits in the United States. Mater. and Soc. 7(2): 183-199; 1983.

Darr, David R. How export promotion programs influence trade. For. Prod. J. 33(4): 15-20; 1983.

Dennis, Donald F. Tax incentives for reforestation in Public Law 96-451. J. For. 81(5): 293-295; 1983.

Dennis, Nicholas; Teeguarden, Dennis E. Identifying suitable National Forest timberlands: a case study. J. For. 80(11): 712-716; 1982.

de Steiguer, J. E. Capital substitution in government cost-share programs: modeling investment behavior. In: Granskog, James E.; Haney, Harry L., Jr., eds. How to cope with hard times: Proceedings, Southern forest economics workshop; 1982 April 1-2; Charleston, SC. Blacksburg, VA: Southern Forest Economic Workers; 1982: 30-42.

Dutrow, G. F. Economics of small woodlot forestry. In: Loblolly pine ecosystem (East Region): Proceedings of the symposium; 1982 December 8-10; Raleigh, NC. Raleigh, NC: North Carolina State University, School of Forest Resources; 1983: 278-284.

Dutrow, G. F.; Conkin, Merle. Improving approaches to estimating timber production opportunities on private forest lands. In: Seppala, Risto; Row, Clark; Morgan, Ann, eds. Forest sector models: Proceedings, 1st North American conference; 1981 December 2-4; Williamsburg, VA. London: AB Acad. Publ.; 1983: 151-159.

Dutrow, G. F.; Kaiser, H. Fred. Economic opportunities for investments in forest management in the Southeastern United States. In: Goetzl, Alberto; Royer, Jack P., eds. Proceedings, Financing forestry investments: attracting private capital to timber and timberlands; 1982 May 10-11; Durham, NC. Washington, DC: National Forest Products Association; 1982: 7-14.

Dutrow, G. F.; Vasievich, J. M.; Conkin, Merle. Economic opportunities for increasing timber supplies. In: Analysis of the timber situation in United States 1952-2030. For. Resour. Rep. 23. Washington, DC: U.S. Department of Agriculture, Forest Service; 1982: 246-253.

Eckstein, Louis W. An analysis of response by buyers to a proposed information system for contact between buyers and sellers of timber. In: Development and marketing sciences: Proceedings, 7th annual conference of Academy of Marketing Science; 1983 May 4-7; Miami, FL. Coral Gables, FL: Academy of Marketing Science and University of Miami; 1983: 580-581.

Engelhard, R.; Anderson, W. C. A method of assessing risk in forestry investments. Res. Pap. SO-189. New Orleans, LA: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station; 1983. 13 p.

Erkkila, Daniel L.; Rose, Dietmar W.; Lundgren, Allen L. Estimating economic impacts of timber-based industry expansion in northeastern Minnesota. Gen. Tech. Rep. NC-82. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 21 p.

Fecso, R. S.; Kaiser, H. F.; Royer, Jack P.; Widenhamer, M. Management practices and reforestation decisions for harvested southern pinelands. SRS Staff Rep. No. AGE5818139. Washington, DC: U.S. Department of Agriculture, Statistical Reporting Services; 1982. 74 p.

Franklin, E. Carlyle; de Steiguer, J. E. How much can forest industry afford to spend on assistance to private nonindustrial owners? In: Proceedings, 1982 research and development division conference; 1982 August 29-September 1; Asheville, NC. Atlanta, GA: Tappi Press; 1982: 227-230.

Gasner, David A. Economic impact of gypsy moth infestations in the Northeast. In: Minutes of the 27th Southern insect work conference; 1982 June 8-10; Blacksburg, VA. Fayetteville, AR: University of Arkansas; 1982: 56-57.

Gasner, David A. Update of PA-USFS risk rating project. In: Proceedings, 1982 national gypsy moth review; 1982 December 7-9; Harrisburg, PA. Harrisburg, PA: Pennsylvania Department of Environmental Resources; 1982: 147.

Gasner, David A.; Herrick, Owen W. Predicting the rate of change in timber value for forest stands infested with gypsy moth. Res. Note NE-311. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1982. 3 p.

Granskog, J. E. America's hardwoods--capturing the opportunities. In: America's hardwood forests--opportunities unlimited: Proceedings, 1982 convention of the Society of American Foresters; 1982 September 19-22; Cincinnati, OH. SAF 83-04. Bethesda, MD: Society of American Foresters; 1983: 243-244.

Granskog, J. E. Exporting southern wood chips. Tech. Pap. 83-P-1. Washington, DC: American Pulpwood Association; 1983. 5 p. (Also printed in: Timber Process. 8(7): 23-24; 1983.

Granskog, J. E. Performance of four row thinning systems using three types of harvesters. In: Proceedings, Thinning southern pine plantations workshop; 1982 May 24-26; Long Beach, MS. Long Beach, MS: Forestry and Harvesting Training Center; 1982: 82-104.

Granskog, J. E. Southern pine plywood exports surge. South. Lumberman. 224(3029): 8-9, 12; 1983.

Granskog, J. E.; Haney, H. L., Jr., eds. Proceedings, Southern forest economics workshop: how to cope with hard times; 1982 April 1-2; Charleston, SC. Blacksburg, VA: Southern Forest Economic Workers; 1982. 142 p.

Guldin, R. W. Economies-of-scale for newly constructed southern pine nurseries. In: Lantz, C. W.; Brissette, J. P., eds. Proceedings, 1982 Southern nursery conference; 1982 August 10-12: Oklahoma City, OK. Tech. Bull. R8-TP4. Atlanta, GA: U.S. Department of Agriculture, Forest Service, Southern Region; 1982: 49-65.

Guldin, R. W. Handplanting costs are influenced by site preparation treatments. In: Jones, Earle P., Jr., ed. Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Ashville, NC: U.S. Department of Agriculture, Forest Service, South Eastern Forest Experiment Station; 1983: 30-33.

Guldin, R. W. Machine planting costs are influenced by site characteristics and preparation practices. Res. Note SO-287. New Orleans, LA: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station; 1983. 4 p.

Guldin, R. W. Regeneration costs for industrial landowners using hand vs. machine planting. South. J. Appl. For. 7(2): 104-108; 1983.

Guldin, R. W. Regeneration costs using container grown southern pine seedlings. Res. Pap. SO-187. New Orleans, LA: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station; 1983. 29 p.

Guldin, R. W. Sales and distribution channels for exporting southern forest products. Res. Pap. SO-192. New Orleans, LA: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station; 1983. 11 p.

Guldin, R. W. Site preparation costs in the southern coastal plain--an update. Res. Note SO-292. New Orleans, LA: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station; 1983. 3 p.

Hansen, Bruce G.; Reynolds, Hugh W. The economics of System 6 processing of standard-size blanks. NE-INF-47-83. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1983. [Not paginated].

Hardie, Ian W.; Scodari, Paul F. A model for forecasting the residential demand for fuelwood. Sci. Pap. A-3310. College Park, MD: University of Maryland, Department of Agricultural and Resource Economics; 1982. 61 p.

Harpole, George B. Aids for economic analysis of wood and bark use of fuel. In: Proceedings, 25th annual Rocky Mountain forest industry's conference; 1981 May 13-15; Rapid City, SD. Madison, WI: Forest Products Research Society; 1981: 93-97.

Harpole, George B. Economics of manufacturing structural lumber from hardwoods using the saw-dry-rip (SDR) concept. For. Prod. J. 33(6): 39-42; 1983.

Harpole, George B. Economics of manufacturing structural lumber from low- to medium-density hardwoods. Res. Pap. FPL 432. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1983. 4 p.

Harpole, George B. Investment analysis programs. In: Resch, H., coord. Proceedings, Process control in the forest products industry; 1980 November 5-7; Portland, OR. Madison, WI: Society of Wood Science Technology; 1982: 19-21.

Harpole, George B. Payback as an investment criterion for sawmill improvement projects. Gen. Tech. Rep. FPL-34. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1983. 4 p.

Harpole, George B.; Ince, Peter J.; Tschernitz, John L.; Bilek, Edward. A wood and bark fuel economics computer program (FEP). Res. Pap. FPL 415. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1982. 12 p.

Harpole, George B.; Bilek, Edward. DEP a computer program for evaluating lumber drying costs and investments. Gen. Tech. Rep. FPL-37. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1983. 20 p.

Harpole, George. Investment evaluation: how to look at cost and payback. In: Williston, Ed, ed. Manufacturing lumber from small logs proceedings; 1980 October 20-22; Seattle, WA. Seattle, WA: University of Washington; 1982: 146-149.

Haynes, Richard W., tech. ed. Competition for National Forest timber: effects on timber-dependent communities. Gen. Tech. Rep. PNW-148. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1983. 40 p.

Herrick, Owen W. Estimating benefits from whole-tree chipping as a logging innovation in northern U.S. forests. For. Prod. J. 32(11/12): 57-60; 1982.

Herrick, Owen W. Estimating innovation benefits: whole-tree chipping in northern U.S. Forests. In: America's hardwood forests--opportunities unlimited: Proceedings, 1982 convention of the Society of American Foresters; 1982 September 19-22; Cincinnati, OH. SAF 83-04. Washington, DC: Society of American Foresters; 1983: 245-247.

Hickman, C. A. Use valuation of forest lands in the United States. Int. Real Estate J. 4(1): 63-70; 1983.

Hickman, C.A. Use value assessment of forest land in the south. In: Granskog, J. E.; Haney, H. L., Jr., eds. How to cope with hard times: Proceedings, Southern Forest Economics Workshop; 1982 April 1-2, Charleston, SC. Blacksburg, VA: Southern Forest Economic Workers; 1982: 115-135.

Hof, John G. Comparing management alternatives with low and high energy input levels for Florida slash pine plantations. For. Sci. 29(1): 78-84; 1983.

Hof, John G. Estimating the effects of multiresource and environmental objectives in modeling timber supply. In: Seppala, Risto; Row, Clark; Morgan, Ann, eds. Forest sector models: Proceedings, 1st North American conference; 1981 December 2-4; Williamsburg, VA. London: AB Acad. Publ.; 1983: 215-228.

Hof, John G.; King, David A. On the necessity of simultaneous recreation demand equation estimation. Land Econ. 58(4): 547-552; 1982.

Hof, John G.; Loomis, John B. A recreation optimization model based on the travel cost method. West. J. Agric. Econ. 8(1): 76-85; 1983.

Hunter, T. Parkin. Regional price variation of southern pine sawtimber and pulpwood. For. Prod. J. 32(9): 23-26; 1982.

Hyde, William F. The Federal preserve in the West: environmental champion or economic despoiler. J. Policy Anal. and Manage. 1983. 15 p.

Hyde, William F.; Dickerman, A.; Stone, D. Development versus preservation in the Snake River birds of prey conservation area. Am. J. Agric. Econ. 64(4): 756-760; 1982.

Ince, Peter J. COMPARE a method for analyzing investment alternatives in industrial wood and bark energy systems. Gen. Tech. Rep. FPL-36. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1983. 27 p.

Ince, Peter J. Economic perspective on harvesting and physical constraints on utilizing small, dead lodgepole pine. For. Prod. J. 32(11/12): 61-66; 1982.

Jackson, David H.; Flowers, Patrick J. The National Forests and stabilization: a look at the factual record. West. Wildlands 8(4): 20-27; 1983.

Jackson, David H.; Flowers, Patrick; Loveless, Robert S., Jr.; Schuster, Ervin G. Predicting prescribed burning costs of wildlife habitat management. Fire Manage. Notes. 43(4): 20-22; 1982.

Kaiser, H. F.; Royer, Jack P. Why nonindustrial private forest landowners do not invest in pine reforestation. Tree Plant. Notes 34(2): 8-10, 1983.

Kent, Michael; Wagar, J. Alan; Dost, William A. Economic feasibility of utilizing urban wood: case study of the San Francisco Bay area. For. Prod. J. 32(9): 46-52; 1982.

Klemperer, D. Ambiguities and pitfalls in forest productivity taxation. J. For. 81(1): 16-19; 1983.

Klemperer, D.; O'Neil, C. Potential implications of a value-added tax for forestry. In: Haney, H. L., Jr.; Siegel, W. C., eds. Proceedings, Forest taxation symposium II; 1982 February 10-11; Williamsburg, VA. Blacksburg, VA: Virginia Polytechnic Institute and State University; 1982: 146-157.

Krutilla, John V.; Fisher, Anthony C.; Hyde, William F.; Smith, V. Jerry. Public versus private ownership: the Federal Lands Case. J. Policy Anal. and Manage; 1983. 20 p.

Lewis, Bernard J.; Ellefson, Paul V. Information for timber management and planning: an assessment of availability and adequacy in Minnesota. Sta. Bull. 547. St. Paul, MN: University of Minnesota, Agricultural Experiment Station; 1983. 139 p.

Lothner, David C. Economic investigations of short rotation intensively cultured hybrid poplars. In: Hansen, Edward A., comp. Intensive plantation culture: 12 years research. Gen. Tech. Rep. NC-91. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1983: 139-148.

Lothner, David C.; Kallio, Edwin. Are Minnesota and Wisconsin forest products prices really increasing? North. Logger and Timber Process. 31(3): 4-5, 30, 33; 1982.

Loveless, Robert S., Jr.; Flower, Patrick J.; Jackson, David H.; Schuster, Ervin G. Economic analysis of wildlife management costs in the U.S. Forest Service, Northern Region. Bull. 47. Missoula, MT: University of Montana, School of Forestry, Montana Forest and Conservation Experiment Station; 1982. 28 p.

Marsinko, A. P. C.; Howe, P. Firewood production and retailing in Greenville, South Carolina. For. Res. Ser. 37. Clemson, SC: Clemson University; June 1983. 25 p.

McGee, T.; Haney, H. L., Jr.; Siegel, W. C. State income tax implications for forestry in the south. South. J. Appl. For. 6(4): 206-211; 1982.

McGee, T.; Haney, H. L., Jr.; Siegel, W. C. How state income taxes can affect forestry investments. For. Farmer 42(4): 8-9, 18-19; 1983.

McKeever, David B.; Martens, David G. Wood use in manufacturing: a national survey. Resour. Bull. FPL-12. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1983. 32 p.

McKillop, William (Department of Forestry and Resource Management, University of California, Berkeley, CA); Adams, Darius; Haynes, Richard; Geissler, Peter. Social, economic and environmental effects of rising timber prices. 59 p. Written in 1980.

McKillop, William; Adams, Darius M.; Haynes, Richard W. National impacts of softwood product price increases. J. For. 79(12): 807-810; 1981.

McKillop, William; Adams, Darius; Haynes, Richard; Geissler, Peter. Social economic and environmental effects of rising timber prices. Berkeley, CA: University of California, Department of Forestry and Resource Management; 1981. 41 p.

Mills, Thomas J.; Dixon, Gary E. Ranking independent timber investments by alternative investment criteria. Res. Pap. PSW-166. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station; 1982. 8 p.

O'Laughlin, Jay; Ellefson, Paul V. Strategies for corporate timberland ownership and management. J. For. 80(12): 784-788; 1982.

Peterson, David L. Estimating postfire timber damage with a simulation model. In: Preprint volume: 7th conference on fire and forest meteorology; 1983 April 25-28; Fort Collins, CO. Boston, MA: American Meteorological Society; 1983: 159-163.

Richards, Merton T.; King, David A. An economic measure of nonconsumptive wildlife values. In: Lime, David W., tech. coord. Forest & river recreation: research update. Misc. Publ. 18. St. Paul, MN: University of Minnesota Agricultural Experiment Station; 1982: 81-84.

Robinson, V. L.; Fay, Willard R. Use of system dynamics approaches to regional forest sector models. In: Seppala, Risto; Row, Clark; Morgan, Ann, eds. Forest sector models: Proceedings, 1st North American conference; 1981 December 2-4; Williamsburg, VA. London: AB Acad. Publ.; 1983: 93-103.

Robinson, V. L.; Fisher, Edward L. A model of turn-time requirements in highlead yarding system. For. Sci. 29(3): 641-652, 1983.

Rose, Dietmar W.; Montzka, Thomas B.; Bradley, Dennis P.; Hoganson, Howard M. Assessing locational advantages of markets in terms of delivered cost of wood. Can. J. For. Res. 13(1): 176-183; 1983.

Royer, Jack P.; Dutrow, George F.; Kaiser, H. Fred. Estimating the response of nonindustrial private forest landowners to investment opportunities and public programs. In: Seppala, Risto; Row, Clark; Morgan, Ann, eds. Forest sector models: Proceedings, 1st North American conference; 1981 December 2-4; Williamsburg, VA. London: AB Acad. Publ.; 1983: 199-214.

Ruderman, Florence K. Production, prices, employment, and trade in Northwest forest industries, first quarter 1982. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1982. 50 p.

Ruderman, Florence K. Production, prices, employment, and trade in Northwest forest industries, second quarter 1982. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1982. 64 p.

Ruderman, Florence K. Production, prices, employment, and trade in Northwest forest industries, third quarter 1982. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1983. 51 p.

Ruderman, Florence K. Production, prices, employment, and trade in Northwest forest industries, fourth quarter 1982. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1982. 49 p.

Schallau, Con H. The molting of Oregon's timber products industry. In: Proceedings, 1983 agricultural conference days; 1983 February 28-March 4; Corvallis, OR. Corvallis, OR: Oregon State University, College of Agricultural Sciences; 1983: 165-171.

Schallau, Con H.; Maki, Wilbur R. Interindustry model for analyzing the regional impacts of forest resource and related supply constraints. For. Sci. 29(2): 384-394; 1983.

Schallau, Con H.; Polzin, Paul E. Considering departures from current timber harvesting policies: case studies of four communities in the Pacific Northwest. Res. Pap. PNW-306. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1983. 29 p.

Schallau, Con. Departures from what? How National Forest harvesting policy has been fashioned to achieve community stability. West. Wildlands 8(4): 8-13; 1983.

Schooley, Daniel C.; Jones, J. Greg. An input-output model for measuring impacts of the Oklahoma forest products industry on the State's economy. Res. Rep. P-838. Stillwater, OK: Oklahoma State University, Agricultural Experiment Station, Division of Agriculture; 1983. 72 p.

Schuler, Albert T.; Wallin, Walter B. A revised econometric model of the domestic pallet market. Res. Pap. NE-522. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1983. 5 p.

Schuster, Ervin G.; Gibbs, Kenneth C. Costs for developed recreation sites in the Northern Region, USDA Forest Service. Res. Pap. INT-317. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 6 p.

Schuster, Ervin G.; Jones, J. Greg. Extramarket valuation for resource allocation: a critique. In: Wagstaff, Fred J., ed. Proceedings, Range economics symposium; 1982 August 31-September 2; Salt Lake City, UT. Gen. Tech. Rep. INT-149. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983: 63-73.

Sendak, Paul E.; Bonyai, Susan A. Firewood delivery systems in northern Vermont. In: Robertson, Doris, proc. coord. Proceedings, 6th International FPRS industrial wood energy forum '82; 1982 March 8-10; Washington, DC. Madison, WI: Forest Products Research Society; 1983: 221-225. Vol. 1 of Proceedings 7334.

Sibal, Pedro V.; Bowyer, James L. The quality of aspen bolts delivered to two concentration yards in northern Minnesota. Tech. Bull. 337. St. Paul, MN: University of Minnesota Agricultural Experiment Station; 1983. 20 p.

Siegel, W. C. Air quality legislation: impacts on prescribed burning in the South. In: Shilling, C.; Toliver, J., eds. Proceedings, Prescribed burning in forest management workshop; 1982 April 21-23; Woodworth, LA. Long Beach, MS: Forestry and Harvesting Training Center; 1982: 52-66.

Siegel, W. C. Filing federal income tax returns for best treatment of timber sales. For. Farmer 42(4): 6-7, 18; 1983.

Siegel, W. C. Forest management and the law. In: Duerr, W. A.; Teeguarden, D. E.; Christiansen, N. B.; Guttenberg, Sam, eds. Forest resource management. Rev. ed. Corvallis, OR: OSU Bookstores, Inc.; 1982: 363-380.

Siegel, W. C. How you can cut your losses - when a tornado cuts your timber. For. and People. 33(3): 16-17; 1983.

Siegel, W. C. Recent developments in federal income and death taxes. In: A new era for timberland investment: Proceedings of a conference; 1982 September 8-9; College Station, TX. College Station, TX: Texas Agricultural Extension Service; 1982: 55-69.

Spelter, Henry. Comparing inplace costs of wood and masonry foundations. For. Prod. J. 33(9): 45-59; 1983.

Straka, Thomas J.; Wisdom, Harold W. Fundamental relationships affecting nonindustrial private forest timber output. In: Granskog, J. E.; Haney, H. L., Jr., eds. How to cope with hard times: Proceedings, Southern forest economics workshop; 1982 April 1-2; Charleston, SC. Blacksburg, VA: Sourthern Forest Economic Workers; 1982: 43-57.

Timson, Floyd G. The personal-use firewood program on three national forests: a cost analysis. Res. Pap. NE-527. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1983. 8 8 p.

Vasievich, J. M. Six keys to profit from short rotation biomass plantations. Ann. Rep. Hilo, HI: BioEnergy Development Corp.; 1982: 92-103.

Vasievich, J. Michael; Brooks, George. Information needs and the role of public sector. In: Goetzl, Alberto; Royer, Jack P., eds. Financing forestry investments: attracting private capital to timber and timberlands proceedings; 1982 May 10-11; Durham, NC. Washington, DC: National Forest Products Association; 1982: 116-117.

Vasievich, J. Michael; Frebis, Ronald F. Forestry investment analysis program, (Version 1.1): a microcomputer program for the APPLE II+ to analyze forestry investments. Demonstrated at America's hardwood forests--opportunities unlimited: Proceedings, 1982 convention of the Society of American Foresters; 1983 Septemger 19-22; Cincinnati, OH. [Publ. in electronic media format, distributed on disk.]

Wallace, Oliver P.; Leak, William B. Returns from short-term ownership of two northern hardwood lots. In: Proceedings, New England Section 63rd annual winter meeting: the future of forests in New England and Eastern Canada; 1983 March 9-11; Burlington, VT. SAF 83-05. Burlington, VT: New England Section, Society of American Foresters; 1983: 107-111.

Walsh, Richard G.; Gilliam, Lynda O. Benefits of wilderness expansion with excess demand for Indian Peaks. West. J. Agric. Econ. 7: 1-12; 1982.

Walsh, Richard G.; Miller, Nicole P.; Gilliam, Lynda O. Conjestion and willingness to pay for expansion of skiing capacity. Land Econ. 59(2): 195-210; 1983.

White, David E.; Bond, Robert S. Labor trends in the woods. In: Town meeting forestry--issues for the 1980's: 1979 convention of the Society of American Foresters; 1979 October 15-17; Boston, MA. Bethesda, MD: Society of American Foresters; 1980: 60-65.

Wisdom, H. W.; Granskog, J. E.; Peeler, R. J., III. Southern exports of wood products 1967-80. Res. Pap. SO-193. New Orleans, LA: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station; 1983. 20 p.

Products and Engineering

Forest Engineering Systems

Arola, Rodger A. Steep slope felling and bunching--the Menzi Muck. In: Proceedings, Timber harvesting in the Central Rockies: problems and opportunities; 1983 January 4-6; Fort Collins, CO. Publ. XCM-87. Fort Collins, CO: Colorado State University, Cooperative Extension Service; 1983: 154-165.

Arola, Rodger A.; Radcliffe, Robert C.; Winsauer, Sharon A. Prototype wood chunker used on Populus 'Tristis.' In: Hansen, Edward A., comp. Intensive plantation culture: 12 years research. Gen. Tech. Rep. NC-91. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1983: 125-130.

Barger, Roland L. Environmental impacts of timber harvesting--a research review. In: Proceedings, Timber harvesting in the Central Rockies: problems and opportunities; 1983 January 4-6; Fort Collins, CO. Publ. XCM-87. Fort Collins, CO: Colorado State University, Cooperative Extension Service; 1983: 256-268.

Barnett, Paul; Christopherson, Nels. Topwood harvester prototype evaluation. Tech. Release 83-R-47. Washington, DC: American Pulpwood Association; 1983. 2 p.

Biller, Cleveland J.; Fisher, E. L. Whole-tree harvesting with a medium capacity cable yarder. ASAE Pap. 82-1591. St. Joseph, MI: American Society of Agricultural Engineering; 1982. 16 p.

Burroughs, Edward R., Jr.; Haber, Donald F.; Watts, Frederick J.; Kadoch, Teresa L. Measuring surface erosion on forest roads and estimating costs of erosion control--preliminary results. Trans. Res. Rec. 898: 214-221; 1983.

Burroughs, Edward R.; Haber, Donald. Cost estimation for forest road erosion control. Pac. Build. & Eng. 1983 August 22: 15-17.

Burt, E. C.; Koger, J. L.; Taylor, J. H.; Bailey, A. C. Performance of log-skidder tires. ASAE Pap. 82-1596. St. Joseph, MI: American Society of Agricultural Engineering; 1982. 9 p.

Carson, Ward W.; Jorgensen, Jens E.; Reutebuch, Stephen E.; Bramwell, William J. A procedure for analysis of guyline tension. Gen. Tech. Rep. PNW-142. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1982. 45 p.

Castanos M., Leon Jorge; Arola, Rodger A. Harvesting wood for energy in North America. In: Smith, W. Ramsay, ed. Proceedings, Energy from forest biomass: 17th IUFRO World Congress energy group; 1981 September 7-11; Kyoto, Japan. New York: Academic Press; 1982: 25-38.

Christopherson, Nels S. Topwood harvesting--a new concept. North. Logger and Timber Process. 31(6): 20-21; 1982.

Crist, John B.; Mattson, James A.; Winsauer, Sharon A. Effect of severing method and stump height on coppice growth. In: Hansen, Edward A., comp. Intensive plantation culture: 12 years research. Gen. Tech. Rep. NC-91. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1983: 58-63.

Fisher, Edward L.; Peters, P. A. Analysis of Eastern United States cable harvesting operations. ASAE Pap. No. 82-1602. St. Joseph, MI: American Society of Agricultural Engineers; 1982. 27 p.

Fridley, James L.; Garbini, J. L.; Jorgensen, J. E. Interactive simulation of forest thinning system concepts. ASAE Pap. No. 82-1603. St. Joseph, MI: American Society of Agricultural Engineers; 1982. 15 p.

Gardner, Rulon B. Estimating production rates and operating costs of timber harvesting equipment in the Northern Rockies. Gen. Tech. Rep. INT-118. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 29 p.

Hartsough, Bruce, R.; Miles, John A.; Lambert, Michael B. Airship logging: parameters affecting load factors. In: Proceedings, 1982 winter meeting, American Society of Agricultural Engineers; 1982 December 14-17; Chicago, IL. Pap. 82-1588. St. Joseph, MI: American Society of Agricultural Engineers; [1982]: 1-38.

Hartsough, Bruce, R.; Miles, John A.; Lambert, Michael. Modeling load assembly methods for Heli-Stat logging. Trans. Am. Soc. Agric. Eng. 26(2): 357-362; 1983.

Hassan, Awatif E.; Sirois, Donald L. Weight distribution characteristics of semi-suspended trees. ASAE Pap. 82-1585. St. Joseph, MI: American Society of Agricultural Engineers; 1982. 26 p.

Hines, Gail S.: Liu, Chang Y.; Webster, Dennis B.; Sirois, Donald L. Features of a skidding module in a timber harvesting computer simulation model. For. Prod. J. 33(7/8): 11-16; 1983.

Hoffman, Roy E., Lanford, Bobby L.; Iff, Ronald H. Evaluation of the Holder A55F logging tractor. Bull. 539. Auburn, AL: Alabama Agricultural Experiment Station; 1982. 33 p.

Host, John R.; Lowery, David P. Salvage and thinning operations in second-growth ponderosa pine stands. Res. Pap. INT-311. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 14 p.

Iff, Ronald H.; Koger, Jerry L.; Burt, Eddie C.; Culver, Wade E. C-A-R-T-S: capacity analysis of rubber-tired skidders. ASAE Pap. 82-1594. St. Joseph, MI: Society of Agricultural Engineers; 1982. 19 p.

Izlar, Bob; Domenech, Doug; Czerepinski, Frank; Stokes, Bryce. Makeri 33T harvester. APA Tech. Release 83-R-14. Washington, DC: American Pulpwood Association; 1983. 3 p.

Johnson, James A.; Arola, Rodger A.; Miyata, Edwin S. Recovery of residue tops in selectively cut northern hardwood stands. Res. Pap. NC-217. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 9 p.

Koger, Jerry L. Log loading methods and costs in the Tennessee Valley Region. Tech. Note B46. Norris, TN: Tennessee Valley Authority, Division of Land and Forest Resources; 1982. 36 p.

Koger, Jerry L.; Sherar, James R. Analysis of the Taylor Skyliner in western North Carolina. In: Jones, Earle P., Jr., ed. Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 247-252.

Koger, Jerry L.; Trouse, Albert C., Jr.; Burt, Eddie C.; [and others]. Effects of skidder tire size on soil compaction. ASAE Pap. 82-1595. St. Joseph, MI: American Society of Agricultural Engineers; 1982. 22 p.

Lanford, Bobby L. Productivity and cost of the Timberjack 30 feller buncher. For. Prod. J. 33(1): 62-66; 1983.

Mattson, James A. Harvesting developments for short rotation intensively cultured forests. For. Prod. J. 33(3): 31-38; 1983.

Mattson, James A. The mechanics of auger cutters for wood. For. Prod. J. 33(2): 31-38; 1983.

Mattson, James A. The potential application of auger cutters to biomass harvesting. In: Robertson, Doris, proc. coord. Proceedings, 6th International FPRS industrial wood energy forum '82; 1982 March 8-10; Washington, DC. Dubuque, IA: Kendall/Hunt Publ. Co.; 1983: 95-99. Vol. 1 of proceedings 7334.

Mattson, James A.; Wehr, Michael A. A prototype harvester for short-rotation plantations. In: Hansen, Edward A., comp. Intensive plantation culture: 12 years research. Gen. Tech. Rep. NC-91. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1983: 119-124.

Miyata, Edwin S.; Steinhilb, Helmuth M.; Mroz, Glenn D.; Coyer, Lynne A. Productivity of a large-wheeled skidder and roller chopper for preparing sites. Res. Pap. 238. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1983. 8 p.

Miyata, Edwin S.; Steinhilb, Helmuth M.; Benson, Miles K.; [and others]. Evaluation of the Pettibone Slashmaster Model 900 for site preparation in the Lake States. Proj. Record 8224 1203: 2400--Timber. San Dimas, CA: U.S. Department of Agriculture, Forest Service, Equipment Development Center; 1983. 17 p.

Peters, Penn A.; Biller, C. J. Log attachment methods evaluated by a Latin Square design. ASAE Pap. No. 82-1604. St. Joseph, MI: American Society of Agricultural Engineers; 1982. 16 p.

Prellwitz, Rodney W. Static analysis of stell "H" piles and the soil "Plug". In: Proceedings, 19th annual engineering geology and soils engineering symposium; 1982 March 31-April 2; Pocatello, ID. Boise, ID: Idaho Transportation Department, Division of Highways; 1982: 231-246.

Reece, J. W.; Iff, Ronald H.; Sirois, Donald L. An inexpensive photogrammetry system for obtaining 3-D spatial coordinates in dynamic testing conditions. For. Sci. 29(2): 341-350; 1983.

Sirois, D.L. The Nicholson-Koch mobile chip harvesting system. In: Robertson, Doris, proc. coord. Proceedings, 6th International FPRS industrial wood energy forum '82; 1982 March 8-10; Washington, DC. Dubuque, IA: Kendall/Hunt Publ. Co.; 1983: 100-105. Vol. 1 of proceedings 7334.

Smith, Leo A.; Sirois, Donald L. Review of human factors applications in forest harvesting. In: Proceedings, Human Factors Society 26th annual meeting; 1982 October 25-29; Seattle, WA. Santa Monica, CA: Human Factors Society; 1982: 271-275.

Stokes, Bryce J.; Koger, Jerry L.; Pickle, Frank J. Mor-bell logger: skidding case study. Res. Note SO-290. New Orleans, LA: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station; 1983. 4 p.

Stokes, Bryce J.; Lanford, Bobby L.; Sirois, Donald L. Mor-bell thinning system feller buncher, skidder and loader. ASAE Pap. 82-1590. St. Joseph, MI: American Society of Agricultural Engineers; 1982. 12 p.

Stokes, Bryce J.; Lanford, B. L. The Albright felling saw in saw timber stands. Trans. of ASAE 26(1): 44-46, 53; 1983.

Stokes, Bryce J.; Lanford, Bobby. Timbco feller-buncher visits the South. APA Tech. Release 83-R-91. Washington, DC: American Pulpwood Association; 1983. 2 p.

Stokes, Bryce J.; Plummer, Glenn M.; Domenech, Douglas W. Forest site preparation operations petroleum consumption management. ASAE Pap. 83-1034. St. Joseph, MI: American Society of Agricultural Engineers; 1983. 15 p.

Stokes, Bryce J.; Sirois, D. L. Operational characteristics of a harvester in intermediate cuttings. In: Jones, Earle P., Jr., ed. Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 240-246.

Turner, John L. A semiempirical mobility model for tracked skidders. ASAE Pap. 82-1597. St. Joseph, MI: American Society of Agricultural Engineers; 1982. 30 p.

Webster, Dennis B.; Padgett, Mary Louise; Sirois, Donald L. Features of a felling module using a feller-buncher in a computer harvesting computer simulation model. For. Prod. J. 33(6): 11-16; 1983.

Wilson, George E.; White, D.E. Economic analysis of the Appalachian Thinner. ASAE Pap. 82-1607. St. Joseph, MI: American Society of Agricultural Engineers; 1982. 14 p.

Winsauer, Sharon A. A program and documentation for simulation of grapple skidders and a whole-tree chipper. Res. Pap. NC-221. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 42 p.

Winsauer, Sharon A.; Bradley, Dennis P. A program and documentation for simulation of a rubber-tired feller/buncher. Res. Pap. NC-212. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 34 p.

Wood Engineering

Converse, A. O.; Hans, G.; Sorensen, A. Thermal and moisture behavior of an envelop test building. In: Thermal performance of the exterior envelopes of buildings II: Proceedings, ASHRAE/DOE conference; 1982 December 6-9; Las Vegas, NV. ASHRAE SP 38. Atlanta, GA: American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.; 1982: 895-912.

Cuppett, Donald G. Low-temperature drying. Furniture Des. & Manuf. 54(12): 81-83; 1982.

DeBonis, A. Louis; McLain, Thomas E.; Wilson, Frank J. Strength-moisture content relationships for southern pine structural lumber: a progress report. In: How the environment affects lumber design: assessment and recommendations; 1980 May 28-30; Madison, WI. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1982: 106-112.

Dean, Margery A. 4. The effect of sample size on parameter estimation for doubly censored lumber data. In: Early, James, G.; Shives, T. Robert; Smith, John H., eds. Time-dependent failure mechanisms and assessment methodologies: Proceedings, 35th meeting of the Mechanical Failures Prevention Group, National Bureau of Standards; 1982 April 20-22; Gaithersburg, MD. New York, NY: Cambridge University Press; 1983: 91-99.

Dean, Margery A. Analysis of censored fatigue data. In: Chen, W. F.; Lewis A. D. M., eds. Recent advances in engineering mechanics and their impact on civil engineering practice: Proceedings, 4th engineering mechanics division specialty conference; 1983 May 23-25; West Lafayette, IN. New York, NY: American Society of Civil Engineers; 1983: 919-922.

Ebewele, Robert O.; River, Bryan H.; Koutsky, James A. Relationship between phenolic adhesive chemistry, cure and joint performance. Part I. Effects of base resin constitution and hardener on fracture energy and thermal effects during cure. J. Adhes. 14: 189-217; 1982.

Galligan, W. L.; Haskell, J. H.; Senft, J. F.; [and others]. Wood joist floors: probabalistic analysis of joist stiffness measured at retail lumberyards. Res. Pap. FPL-402. Madison, WI: U.S. Department of Agiculture, Forest Service, Forest Products Laboratory; 1982. 28 p.

Galligan, William L. Effect of environment on lumber properties--a perspective from application. In: How the environment affects lumber design: assessments and recommendations; 1980 May 28-30; Madison, WI. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1982: 8-11.

Gerhards, C. C. Effect of high-temperature drying on bending strength of yellow-poplar 2 by 4's. For. Prod. J. 33(2): 61-67; 1983.

Gerhards, C. C.; Floeter, L. H. Nondestructive evaluation of mechanical properties of a structural flakeboard made from forest residues. Res. Pap. FPL-414. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1982. 16 p.

Gerhards, Charles C. Effect of temperature and moisture content on duration of load characteristics of lumber. In: How the environment affects lumber design: assessments and recommendations; 1980 May 28-30; Madison, WI. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1982: 125-131.

Gerhards, Charles C.; Link, Carol L. A cumulative damage model for lumber. In: Chen, W. F.; Lewis, A. D. M., eds. Recent advances in engineering mechanics and their impact on civil engineering practice: Proceedings, 4th engineering mechanics division specialty conference; 1983 May 23-25; West Lafayette, IN. New York, NY: American Society of Civil Engineers; 1983: 940-943.

Gerhardt, Terry D. Plane stress analysis of wood members using isoparametric finite elements--a computer program. Gen. Tech. Rep. FPL-35. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1983. 16 p.

Gerhardt, Terry D.; Liu, Jen Y. Orthotropic beams under normal and shear loading. J. Eng. Mech. 109(2): 394-410; 1983.

Goodman, James R.; Vanderbilt, M. Daniel; Criswell, Marvin E. Reliability-based design of wood transmission line structures. J. Structural Eng. 109(3): 690-704; 1983.

Green, David W. Adjusting the static strength of lumber for changes in moisture content. In: How the environment affects lumber design: assessments and recommendations; 1980 May 28-30; Madison, WI. Madison, WI: U.S. Department of Ariculture, Forest Service, Forest Products Laboratory; 1982: 86-105.

Green, David W.; Evans, James W. Estimating correlation between strength properties. In: Chen, W. F.; Lewis, A. D. M., eds. Proceedings, Recent advances in engineering mechanics and their impact on civil engineering practice: Proceedings, 4th engineering mechanics division specialty conference; 1983 May 23-25; West Lafayette, IN. New York, NY: American Society of Civil Engineers; 1983; 2: 936-939.

Hans, G. E.; Calthorpe, P. Solar heat recovery from windows in lightframe wood construction. In: Thermal performance of the exterior envelopes of buildings II: Proceedings, ASHRAE/DOE conference; 1982 December 6-9; Las Vegas, NV. ASHRAE SP 38. Atlanta, GA: American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.; 1982: 876-894.

James, William L. Dielectric properties of lumber loads in a dry kiln. Res. Pap. FPL-436. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1983. 16 p.

Johnson, Richard A.; Galligan, William L. Estimating the concomitance of luber strength properties. Wood and Fiber Sci. 15(3): 235-244; 1983.

Lyon, Duane E. Lumber and its use environment--research needs. In: How the environment affects lumber design: assessments and recommendations; 1980 May 28-30; Madison, WI. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1982: 12-14.

Lyon, Duane E.; Galligan, William. L. co-chairmen. How the environment affects lumber design: assessments and recommendations; 1980 May 28-30; Madison, WI. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1982. 146 p.

Mall, S.; Murphy, Joseph F.; Shottafer, James E. Criterion for mixed mode fracture in wood. J. Eng. Mech. 109(3): 680-690; 1983.

Marin, Lisa A.; Woeste, Frank E. Reverse proofloading of lumber. For. Prod. J. 32(10): 53-55; 1982.

McCutcheon, William J. Deflections and stresses in circular tapered beams and poles. In: Civil engineering for practicing and design engineers. Elmsford, NY: Pergamon Press Ltd.; 1983; 2: 207-233.

McLain, T. E.; Holland, J. S. Preliminary evaluation of the strength and stiffness of yellow-poplar pallet shook. For. Prod. J. 32(11/12): 51-56; 1982.

Oviatt, Alfred E., Jr. Weather exposure. In: Oviatt, Alfred E., Jr., chap-coord. Chapter 7: Designing to avoid problems. Evaluation, maintenance, and upgrading of wood structures: a guide and commentary. New York, NY: American Society of Civil Engineers; 1982: 307-312.

Oviatt, Alfred E., Jr. High-humidity environments. In: Oviatt, Alfred E., Jr., chap-coord. Chapter 7: Evaluation, maintenance, and upgrading of wood structures: a guide and commentary. New York, NY: American Society of Civil Engineers; 1982: 312-318.

Oviatt, Alfred E., Jr. Mechanical damage. In: Oviatt, Alfred E., Jr., chap-coord. Chapter 7: Evaluation, maintenance, and upgrading of wood structures: a guide and commentary. New York, NY: American Society of Civil Engineers; 1982: 362-365.

Resch, H.; Johnson, J. W.; Bendtsen, B. A. Strength and stiffness of clear Douglas-fir exposed to the Mount St. Helens volcanic eruption. For. Prod. J. 33(7/8): 52-56; 1983.

Schaefer, Eugene M.; Vanderbilt, M. Daniel. Comprehensive analysis methodology for wood floors. J. Structural Eng. 109(7): 1680-1694; 1983.

Schaffer, E. L. Temperature. In: Oviatt, Alfred E., Jr., chap-coord. Chapter 7: Evaluation, maintenance, and upgrading of wood structures: a guide and commentary. New York, NY: American Society of Civil Engineers; 1982: 69-92.

Schaffer, E. L. Fire. In: Oviatt, Alfred E., Jr., chap-coord. Chapter 7: Evaluation, maintenance, and upgrading of wood structures: a guide and commentary. New York, NY: American Society of Civil Engineers; 1982: 120-125.

Schaffer, E. L.; White, Robert; Brenden, John. Designing for fire safety. In: Wall and floor systems: design and performance of light-frame structures; 1981 September 22-24; Denver, CO. FPRS proceedings 7317. Dubuque, IA: Kendall/Hunt Publ. Co.; 1983: 124-134.

Schaffer, Erwin L. Fire. In: Oviatt, Alfred E., Jr., chap-coord. Chapter 7: Evaluation, maintenance, and upgrading of wood structures: a guide and commentary. New York, NY: American Society of Civil Engineers; 1982: 319-338.

Schniewind, Arno P.; Gammon, Barry; Bendtsen, B. A. Strength of untreated Douglas-fir foundation piles after some 70 years' service. For. Prod. J. 32(11/12): 39-46; 1982.

Sherwood, G. E. Condensation potential in high thermal performance walls--cold winter climate. Res. Pap. FPL-433. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1983. 20 p.

Sherwood, Gerald E. Design considerations for wooden structures in Florida. Circ. 538. Gainesville, FL: University of Florida, Institute of Food Agriculture Science; 1983. 14 p.

Sherwood, Gerald E. Protection and maintenance of wood siding in Florida. FRC-23. Gainesville, FL: University of Florida, Institute of Food Agriculture Science; 1983. 4 p.

Sherwood, Gerald E.; TenWolde, Anton. Moisture movement and control in light-frame structures. For. Prod. J. 32(10): 69-73; 1982.

Sherwood, Gerald. Selection of wood for home and commercial vineyards in Florida. FRC-29. Gainesville, FL: University of Florida, Institute of Food Agriculture Science; 1983. 4 p.

Sherwood, Gerald. Sheet metal flashing for wood structures in Florida. FRC-30. Gainesville, FL: University of Florida, Institute of Food Agriculture Science; 1983. 4 p.

Sherwood, Gerald. The effect of landscaping on wood siding in Florida. FRC-27. Gainesville, FL: University of Florida, Institute of Food Agriculture Science; 1983. 4 p.

Sherwood, Gerald. Wood siding types and application. FRC-26. Gainesville, FL: University of Florida, Institute of Food Agriculture Science; 1983. 6 p.

Simpson, William T. Predrying before press-drying to reduce drying defects in hardwoods. For. Prod. J. 32(11/12): 77-80; 1982.

Tenwolde, A. The Kieper and MOISTWALL moisture analysis methods for walls. In: Thermal performance of the exterior envelopes of buildings II: Proceedings, ASHRAE/DOE conference; 1982 December 6-9; Las Vegas, NV. ASHRAE SP 38. Atlanta, GA: American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc.; 1982: 1033-1050.

Wallin, Walter B.; Whitenack, Kenneth R. Pallet joint shear resistance - the F(2) factor. Pallet Enterp. 1(4): 20-21; 1982.

Wallin, Walter B.; Whitenack, Kenneth R. Application of joint performance criteria to pallet design. Pallet Enterp. 1(5): 24-26; 1982.

Wallin, Walter B.; Whitenack, Kenneth R. Fastener equivalence guides for wooden pallets. Pallet Enterp. 1(6): 25-29; 1982.

Wheat, Dan L.; Vanderbilt, M. Daniel; Goodman, James R. Wood floors with nonlinear nail stiffness. J. Struct. Eng. 109(5): 1290-1303; 1983.

Winandy, J. E.; Bendtsen, B. A.; Boone, R. S. Effect of delay between treatment and drying on toughness of CCA-treated southern pine. For. Prod. J. 33(6): 53-58; 1983.

Zahn, John J. Lateral stability of beams with initial imperfections. J. Eng. Mech. 109(3): 821-835; 1983.

Zahn, John J. Strength under combined loading. In: Wall and floor systems: design and performance of light-frame structures; 1981 September 22-24; Denver, CO. FPRS proceedings 7317. Dubuque, IA: Kendall/Hunt Publ. Co.; 1983: 57-62.

Chemistry, Fiber, and Fuel Products

Atalla, Rajai H. Raman microprobe studies of fiber transformations during press drying. 1983 Press dry conference; 1983 September 7-9; Madison, WI. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1983. [Not paginated].

Baker, A. J. Energy properties of wood. In: Proceedings, Fuelwood management and utilization seminar; 1982 November 9-11; East Lansing, MI. East Lansing, MI: Michigan State University; 1982: 14-31.

Baker, Andrew J. Chemicals. In: Oviatt, Alfred E., Jr., chap-coord. Chapter 7: Evaluation, maintenance and upgrading of wood structures: a guide and commentary. New York, NY: American Society of Civil Engineers; 1982: 97-106.

Baker, Andrew J. New findings on wood fuel values. Am. For. 89(2): 45-47, 51-52; 1983.

Baker, Andrew J., ed. Advances in production of forest products. Forest products division symposium; 1981 November 8-12; New Orleans, LA. AIChE Symposium Series 79(223). New York, NY: American Institute of Chemical Engineers; 1983. 87 p.

Bar-Lev, S. S.; Kirk, T. K.; Chang, H.-m. Fungal treatment can reduce energy requirements for secondary refining of TMP. Tappi J. 65(10): 111-113; 1982.

Bormett, David W. Corrugated fiberboard with high oak content linerboard can be scored. Boxboard Containers 90(8): 27-30; 1983.

Burley, J.; Miller, R. B. Chapter 8. The application of statistics and computing in wood anatomy. In: Metcalfe, C. R.; Chalk, L., eds. 2d ed., Anatomy of the dicotyledons: wood structure and conclusion of the general introduction. Oxford, England: Clarendon Press; 2: 174-179; 1983.

Chen, C.-L.; Tai, D.; Terazawa, M.; Chang, H.-m.; Kirk, T. K. Chemistry of birch lignin biodegradation by Phanerochaete chrysosporium. In: Proceedings, 1983 international symposium on wood and pulping chemistry; 1983 May 23-27; Tsukuba, Japan. Tokyo, Japan: Japan Technical Association of the Pulp and Paper Industry; 1983; 3: 13-18.

Chen, Chen-Loung; Chang, Hou-min; Kirk, T. Kent. Carboxylic acids produced through oxidative cleavage of aromatic rings during degradation of lignin in spruce wood by Phanerochaete chrysosporium. J. Wood Chem. Technol. 3(1): 35-57; 1983.

Chin, Der-Hang; Jones, Stephen E.; Leon, Luis E.; [and others]. Redox chemistry of the 3,5-Di-tert-butylcatecholato and -o-semiquinonato complexes of transition metal ions in aprotic Mediaia. In: Kadishik. Electrochemical and spectrochemical studies of biological redox components. Adv. Chem. Ser. 201. Riverside, CA: University of California; 1982: 657-707.

Chua, Miranda, G. S.; Choi, Suki; Kirk, T. Kent. Mycelium and depolymerization of synthetic ^{14}OC-labeled lignin during decomposition by Phanerochaete chrysosporium. Holzforschung 37(2): 55-61; 1983.

Cote, W. A.; Hanna, R. B. Ultrastructural characteristics of wood fracture surfaces. Wood and Fiber Sci. 15(2): 135-163; 1983.

Fahey, D. J.; Bormett, D. W. Recycled fibers in corrugated fiberboard containers. Tappi J. 65(10): 107-110; 1982.

Fahey, Thomas D. Product recovery from hemlock "pulpwood" from Alaska. Res. Pap. PNW-303. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1983. 21 p.

Foo, L. Y.; McGraw, G. W.; Hemingway, R. W. Condensed tannins: preferential substitution at the interflavanoid bond by sulphite ion. J. Chem. Soc., Chem. Commun. 12: 672-673; 1983.

Foster, Daniel O.; Zinkel, Duane F. Qualitative and quantitative analysis of diterpene resin acids by glass capillary gas-liquid chromatography. J. Chromatogr. 248: 89-98; 1982.

Godshall, W. Duncan. Package performance testing. ASTM Standardization News 10(10): 23-25; 1982.

Gunderson, Dennis E. The influence of web temperature and continuous versus intermittent restraint on the properties of press-dried paper. In: 1983 Press dry conference; 1983 September 7-9; Madison, WI. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1983. [Not paginated].

Gunderson, Dennis E., Hunt, John F.; Setterholm, Vance C. High-speed simulation of press drying. In: 1983 Press dry conference; 1983 September 7-9; Madison, WI. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1983. [Not paginated].

Hemingway, R. W.; Karchesy, J. J.; McGraw, G. W.; Wielesek, R. A. Heterogeneity of interflavanoid bond location in loblolly pine bark procyanidins. Phytochem. 22(1): 275-281; 1983.

Hon, D. N.-S.; Chang, Shang-Tzen; Feist, W. C. Participation of singlet oxygen in the photodegradation of wood surfaces. Wood Sci. Technol. 16: 193-201; 1982.

Horn, R. A.; Setterholm, V. C. Continuous on-line press drying of high-yield oak fiber for linerboard. Tappi J. 66(6): 59-62; 1983.

Horn, Richard A. Press drying: its application in recycled fiber for linerboard. In: 1983 Press dry conference; 1983 September 7-9; Madison, WI. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1983. [Not paginated].

Jeffries, T. W. A comparison of Candida tropicalis and Pachysolen tannophilus for conversion of xylose to ethanol. In: Scott, D. D., ed. Proceedings, 4th symposium on biotechnology in energy production and conservation; 1982 May 11-14; Gatlinburg, TN. Biotechnol. Bioengin. Symp. 12. New York, NY: John Wiley & Sons, Inc.; 1982: 103-110.

Jeffries, Thomas W. Effects of nitrate on fermentation of xylose and glucose by Pachysolen tannophilus. Bio/Technology 1(6): 503-506; 1983.

Jeffries, Thomas W. Utilization of xylose by bacteria, yeasts, and fungi. In: Fiechter, A., ed. Advances in biochemical engineering/biotechork. New York, NY: Springer-Verlag; 1983; 27: 1-32.

Kirk, T. K. Jefferies, T. W.; Leatham, G. F. Biotechnoogy: applications and implications for the pulp and paper industry. Tappi J. 66(5): 45-51; 1983.

Kirk, T. Kent. Chapter 11. Degradation and conversion of lignocelluloses. In: Smith, John E.; Be, Bjorn, eds. The filamentous fungi. Vol. 4: Fungal technology. London, England: Edward Arnold; 1983: 266-295.

Kirk, T. Kent. What have studies of model compounds revealed about the fungal degradation of lignin? In: Proceedings, 1983 international symposium on wood and pulping chemistry; 1983 May 23-27; Tsukuba, Japan. Tokyo, Japan: Japan Technical Association of the Pulp and Paper Industry; 1983: 7-12.

Kirk, T. Kent; Nakatsubo, Fumiaki. Chemical mechanism of an important cleavage reaction in the fungal degradation of lignin. Biochemica et Biophysica Acta 756: 376-384; 1983.

Kirk, T. Kent; Nakatsubo, Fumiaki; Reid, Ian D. Further study discounts role for singlet oxygen in fungal degradation of lignin model compounds. Biochem. Biophys. Res. Comm. 111(1): 200-204; 1983.

Klungness, John H.; Caulfield, Daniel F. Mechanisms affecting fiber bonding during drying and aging of pulps. Tappi J. 65(12): 94-97; 1982.

Krahmer, Robert L.; DeGroot, Rodney C.; Lowell, Eini C. Detecting incipient brown rot with fluorescence microscopy. Wood Sci. 15(2): 78-80; 1982.

Kukachka, B. F. Wood anatomy of the Neotropical Sapotaceae. Pouteria. Res. Pap. FPL-419. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1982. 18 p.

Kukachka, B. F. Wood anatomy of the Neotropical Sapotaceae. 28. Labatia. Res. Pap. FPL-416. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1982. 8 p.

Kukachka, B. F. Wood anatomy of the Neotropical Sapotaceae. 29. Eglerodendron. Res. Pap. FPL-417. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1982. 4 p.

Kukachka, B. F. Wood anatomy of the Neotropical Sapotaceae. 30. Pseudocladia. Res. Pap. FPL-418. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1982. 4 p.

Kukachka, B. F. Wood anatomy of the Neotropical Sapotaceae. 32. Richardella. Res. Pap. FPL-420. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1982. 7 p.

Kukachka, B. F. Wood anatomy of the Neotropical Sapotaceae. 33. Englerella. Res. Pap. FPL-421. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1982. 6 p.

Kukachka, B. F. Wood anatomy of the Neotropical Sapotaceae. 34. Res. Pap. FPL-234. U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1982. 10 p.

Kukachka, B. F. Wood anatomy of the Neotropical Sapotaceae. 35. Urbanella. Res. Pap. FPL-423. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1982. 6 p.

Kukachka, B. F. Wood anatomy of the Neotropical Sapotaceae. 36. Syzygiopsis. Res. Pap. FPL-424. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1982. 5 p.

Kukachka, B. F. Wood anatomy of the Neotropical Sapotaceae. 37. Genus Novo? Res. Pap. FPL-425. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1982. 5 p.

Kukachka, B. F. Wood anatomy of the Neotropical Sapotaceae. 38. Res. Pap. FPL-426. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1982. 6 p.

Landucci, Lawrence L.; Ralph, John. Adducts of anthrahydroguinone and anthranol with lignin model quinone methides. 1. Synthesis and characterization. J. Org. Chem. 47: 3486-3495; 1982.

Leatham, Gary F. The cultivation of shiitake on logs for the United States. Madison, WI: University of Wisconsin Extension 1983. (Slide-Tape)

Leatham, Gary F.; Crawford, R. L.; Kirk, T. Kent. Degradation of phenolic compounds and ring cleavage of catechol by Phanerochaete chrysosporium. Appl. Environ. Microbiol. 46(1): 191-197; 1983.

Leatham, Gary F.; Kirk, T. Kent. Regulation of ligninolytic activity by nutrient nitrogen in white-rot basidiomycetes. FEMS Microbiol. Letters 16: 65-67; 1983.

Lee, Chen Hui; Quirk, J. Thomas. Precision of measuring anatomical characteristics in jack pine. Wood and Fiber Sci. 15(1): 74-80; 1983.

Maciel, Gary E.; Chuang, I-Ssuer; Myers, George E. ^{13}C NMR study of cured furfuryl alcohol resins using cross polarization and magic angle spinning. Macromolecules 15(4): 1218-1220; 1982.

Maciel, Gary E.; Szeverenyi, Nikolaus M.; Early, Thomas A.; Myers, George E. ^{13}C NMR studies of solid urea-formaldehyde resins using coss polarization and magic-angle spinning. Macromolecules 16(4): 598-604; 1983.

Myers, George E. Formaldehyde emission from particleboard and plywood paneling: measurement, mechanism, and product standards. For. Prod. J. 33(5): 27-37; 1983.

Myers, George E. Use of acid scavengers to improve durability of acid-catalyzed adhesive wood bonds. For. Prod. J. 33(4): 49-57; 1983.

Nakatsubo, Fumiaki; Reid, Ian D.; Kirk, T. Kent. Incorporation of $^{18}O_2$ and absence of stereo specificity in primary product formation during fungal metabolism of a lignin model compound. Biochimica et Biophysica Acta 719: 284-291; 1982.

National Research Council (U.S.). Subcommittee on underutilized resources as animal feedstuffs. Underutilized resources as animal feedstuffs. Washington, DC: National Academy Press; 1983. 253 p.

Obst, John R. Kinetics of alkaline cleavage of B-aryl ether bonds in lignin models: significance todelignification. Holzforschung 37(1): 23-28; 1983.

Phelps, John E. Biomass from intensively cultured plantations as an energy, chemical, and nutritional feedstock. In: Hansen, Edward A., comp. Intensive plantation culture: 12 years research. Gen. Tech. Rep. NC-91. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1983: 131-138.

Quirk, J. T. Data for a computer-assisted wood identification system. I. Commercial legumes of tropical Asia and Australia. IAWA Bull. n.s. 4(2-3): 118-130; 1983.

Ralph, John; Landucci, Lawrence L. Adducts of anthrahydroquinone and anthranol with lignin model quinone methides. 2 Dehydration derivatives. Proof of threo configuration. J. Org. Chem. 48: 372-376; 1983.

Rowell, Roger M. Distribution of acetyl groups in southern pine reacted with acetic anhydride. Wood Sci. 15(2): 172-182; 1982.

Rowell, Roger M. Influence of chemical environment on strength of wood fibers. In: How the environment affects lumber design: assessments and recommendations; 1980 May 28-39; Madison, WI. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1982: 76-84.

Rowell, Roger M.; Moisuk, Robert; Meyer, John A. Wood-polymer composites: cell wall grafting with alkylene oxides and lumen treatments with methyl methacrylate. Wood Sci. 15(2): 90-96; 1982.

Rowlands, R. E.; Beazley, P. K.; Gunderson, D. E. Moir, strain analysis of paper. Tappi J. 66(8): 81-84; 1983.

Sarkanen, Simo; Teller, David C.; Abramowski, Edward; McCarthy, Joseph L. Lignin. In: 19. Kraft lignin component conformation and associated complex configuration in aqueous alkaline solution. Macromolecules 15: 1098-1104; 1982.

Setterholm, Vance C. Press-drying update. In: 1983 Press dry conference; 1983 September 7-9; Madison, WI. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1983. [Not paginated].

Setterholm, Vance C. The future of press drying. In: 1983 Press dry conference; 1983 September 7-9; Madison, WI. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1983. [Not paginated].

Setterholm, Vance C.; Gunderson, Dennis E. 4. Observations on load-formation testing. In: Mark, Richard E.; Murakami, Koji, eds. Handbook of physical and mechanical testing of paper and paperboard. New York, NY: Marcel Dekker, Inc.; 1983: 115-143.

Springer, A. M.; Chandrasekaran, S.; Wegner, T. The importance of starch as an organic contaminant on drainage and retention: board mill systems. In: Proceedings, TAPPI 1982 pulping conference; 1982 October 25-27; Toronto, Canada. Atlanta, GA: Technical Association of the Pulp and Paper Industry; 1982: 417-422.

Springer, Edward L. Evaluation of chemical treatments for maintaining brightness of stored wood chips. Tappi J. 66(2): 93-96; 1983.

Springer, Edward L.; Harris, John F. Prehydrolysis of aspen wood with water and with dilute aqueous sulfuric acid. Svensk Papperstid. 85(15): R 152-R 154; 1982.

Suchsland, O.; Woodson, G. E.; McMillin, C. W. Effect of hardboard process variables on fiberbonding. For. Prod. J. 33(4): 58-64. 1983.

Tai, D.; Terazawa, M.; Chen, C.-L.; [and others]. Characterization of biodegraded lignins isolated from birch wood decayed by Phanerochaete chrysosporium ^{13}C NMR spectroscopy. In: Proceedings, 1983 international symposium on wood and pulping chemistry; 1983 May 23-27; Tsukuba, Japan. Tokyo, Japan: Japan Technical Association of the Pulp and Paper Industry; 1983; 4: 144-149.

Terazawa, M.; Tai, D-s.; Chen, C.-L.; [and others]. Identification of the constituents of low molecular weight fraction obtained from birch wood degraded by Phanerochaete chrysosporium. In: Proceedings, 1983 international symposium on wood and pulping chemistry; 1983 May 23-27; Tsukuba, Japan. Tokoyo, Japan: Japan Technical Association of the Pulp and Paper Industry; 1983: 4: 150-155.

Tien, Ming; Kirk, T. Kent. Lignin-degrading enzyme from the hymenomycete Phanerochaete chrysosporium Burds. Science 221: 661-663; 1983.

Tobolski, James J.; Zinkel, Duane F. Variation in needle and cortex resin acids during shoot development in Pinus sylvestris, P. nigra, and P. strobus. For. Sci. 28(4): 785-796; 1982.

Vickerman, William A.; Godshall, W. D. Performance testing to reduce loss and damage. In: Shives, T. Robert, ed. Proceedings, 34th meeting of mechanical failures prevention group; 1981 October 21-23; Gaithersburg, MD. Spec. Publ. 652. Washington, DC: U.S. Department of Commerce, National Bureau of Standards; 1983: 213-218.

Wartluft, Jeffrey L. Seasoning Appalachian hardwood firewood. In: Robertson, Doris, proc. coord. Proceedings, 6th international FPRS industrial wood energy forum '82; 1982 March 8-10; Washington, DC. Dubuque, IA: Kendall/Hunt Publ. Co.; 1983: 175-186. Vol. 1 of proceedings 7334.

Wartluft, Jeffrey L. Seasoning Appalachian hardwood firewood. In: Robertson, Doris, proc. coord. Proceedings, 6th international FPRS industrial wood energy forum '82, 1982 March 8-10; Washington, DC; Dubuque, IA: Kendall/Hunt Publ. Co.; 1983: 175-186. Vol. 1 of proceedings 7334.

Wegner, T. H.; Young, T. L. Caulfield, D. F. Role of fiber geometry in water removal by wet pressing. Tappi J. 66(4): 85-88; 1983.

Werner, R. A.; Elert, E. E.; Hosten, E. H. Evaluation of battle-killed white spruce for pulp and paper. Can. J. For. Res. 13(2): 246-250; 1983.

White, M. S.; Curtis, M. L.; Sarles, R. L.; Green, D. W. Effects of outside storage on the energy potential of hardwood particulate fuels: Part I. Moisture content and temperature. For. Prod. J. 33(6): 31-38; 1983.

White, M. S.; Curtis, M. L.; Sarles, R. L.; Green, D. W. Effects of outside storage on the energy potential of hardwood particulate fuels: Part II. Higher and net heating values. For. Prod. J. 33(11/12): 61-65; 1983.

Williams, V. M.; Porter, L. J.; Hemingway, R. W. Molecular weight profiles of proanthocyanidin polymers. Phytochemistry 22(2): 569-572; 1983.

Zeikus, J. G.; Wellstein, A. L.; Kirk, T. K. Molecular basis for the biodegradative recalcitrance of lignin in anaerobic environments. FEMS. Letters 15: 193-197; 1982.

Zerbe, J. I. Energy properties of wood. In: Proceedings, Fuelwood management and utilization seminar; 1982 November 9-11; East Lansing, MI. East Lansing, MI: Michigan State University; 1982: 6-13.

Zerbe, J. Wood production of liquid or gaseous fuels. In: United Nations Economic Commission for Europe seminar on energy conservation and self sufficiency in the sawmilling industry; 1982 September 13-17; Bonn, Federal Republic of Germany. Bonn: United Nations Economic Commission; 1982: 333-344.

Zerbe, John I. Future of wood as a boiler fuel. In: Proceedings, Technical association of the pulp and paper industry engine conference; 1982 September 13-16; San Francisco, CA. Book 2. Atlanta, GA: Tappi Press; 1982: 393-398.

Zerbe, John I. Technologies for energy production from sawmilling residues. In: United Nations Economic Commission for Europe seminar on on energy conservation and self sufficiency in the sawmilling industry; 1982 September 13-17; Bonn, Federal Republic of Germany. Bonn: United Nations Economic Commission; 1982: 367-375.

Zerbe, John I. Wood as a source of energy to 1990. In: 1982 summer meeting of American Society of Agricultural Engineers; 1982 June 27-30; Madison, WI. ASAE Pap. 82-3093. St. Joseph, MI: American Society of Agricultural Engineers; 1982. 9 p.

Zinkel, Duane F. Quantitative separation of ether-soluble acidic and neutral materials. J. Wood Chem. Technol. 3(2): 131-143; 1983.

Utilization Potential and Processing of Wood

Adams, Edward L. Use of recording watt/varmeter to evaluate the electrical power requirements of a combination edger. Gen. Tech. Rep. NE-79. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1983. 5 p.

American Plywood Association. Performance standards and policies for structural-use panels. Tacoma, WA: American Plywood Association; November 1982: 52 p.

Anderson, R. Bruce. Furniture rough mill costs evaluated by computer simulation. Res. Pap. NE-518. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1983. 11 p.

Araman, Philip A. BLANKS: a computer program for analyzing furniture rough-part needs in standard-size blanks. Res. Pap. NE-521. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1983. 8 p.

Araman, Philip A. Program BLANKS analyzes rough-part needs in standard size blanks. NE-INF-44-83. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1983. [Not paginated].

Araman, Philip A. Standard-size blanks for furniture and cabinets. NE-INF-45-83. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1983. [Not paginated].

Araman, Philip A. Standard-size hardwood blanks for furniture and cabinets--a potential for tropical hardwood producers. Import/Export Wood Purchasing News 9(1): 3, 15, 26; 1982.

Araman, Philip A.; Hansen, Bruce G. Conventional processing of standard-size edge-glued blanks for furniture and cabinet parts: a feasibility study. Res. Pap. NE-524. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1983. 11 p.

Araman, Philip A.; Hansen, Bruce G. The dollars and cents of conventional processing of standard-size blanks. NE-INF-43-83. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1983. [Not paginated].

Araman, Philip A.; Reynolds, Hugh W. Crafts offer new market for edge-glued panels. Wood & Wood Prod. 88(6): 86, 88, 90; 1983.

Araman, Philip A.; Reynolds, Hugh W. Craftsmen say "We want edge-glued, standard-size panels". Res. Note NE-312. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1983. 4 p.

Arola, Rodger A.; Sturos, Joseph B. A portable chunking machine. Res. Note WO-11. Washington, DC: U.S. Department of Agriculture, Forest Service; 1982. 4 p.

Barnes, D. P.; Sinclair, S. A. Time-related changes in specific gravity and moisture content of spruce budworm killed balsam fir. Can. J. For. Res. 13(2): 257-263; 1983.

Beard, John N., Jr.; Rosen, Howard N.; Adesanya, Babafemi A. Heat transfer during the drying of lumber. In: Ashworth, John C., ed. Proceedings, 3d International drying symposium; 1982 September 13-16; Birmingham, England. Wolverhampton, England: Drying Research Limited; 1982; 1: 110-122.

Blinn, Charles R.; Sinclair, Steven A.; Ek, Alan R. A method for estimating the multi-product value of hardwood timber stands. For. Prod. J. 33(3): 49-54; 1983.

Brisbin, R. L.; Rast, E. D. Predicting hardwood tree quality. In: America's hardwood forests--opportunities unlimited: Proceedings, 1982 convention of the Society of American Foresters; 1982 September 19-22; Cincinnati, OH. SAF 83-04. Bethesda, MD: Society of American Foresters; 1983: 118-120.

Cahill, James M. Cubic log scale deductions in dead timber: an empirical approach. For. Prod. J. 33(4): 21-24; 1983.

Chen, P. Y. S.; Rosen, H. N. Solar-dehumidification drying of red oak. J. Inst. Wood Sci. 9(4): 194-196; 1982.

Chen, Peter Y. S.; Helmer, Wayne A.; Rosen, Howard N.; Barton, Dennis J. Experimental solar-dehumidifier kiln for drying lumber. For. Prod. J. 32(9): 35-41; 1982.

Craft, E. Paul; Whitenack, Kenneth R., Jr. A classification system for predicting pallet part quality from hardwood cants. Res. Pap. NE-515. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1982. 7 p.

Crist, John B. Synopsis of utilization research on SRIC raw materials. In: Hansen, Edward A., comp. Intensive plantation culture: 12 years research. Gen. Tech. Rep. NC-91. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1983: 115-118.

Cuppett, Donald G.; Craft, E. Paul. Low-grade log sawing rates for a mobile sawmill. South. Lumberman 243(3025): 6-9; 1982.

Edens, Jon. Performance tests on the powered back-up roll. For. Prod. J. 33(1): 53-61; 1983.

Ernst, Susan; Pong, W. Y. Predicting lumber volume and value of young-growth true firs: users' guide. Gen. Tech. Rep. PNW-147. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1982. 14 p.

Fahey, Thomas D.; Snellgrove, Thomas A. Measuring improvements in lumber recovery. For. Ind. December: 32-34; 1982.

Fahey, Thomas D.; Woodfin, Richard O., Jr. Western hemlock as a veneer resource. Res. Pap. PNW-299. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1982. 24 p.

Fronczak, Frank J.; Hunt, John F. Auxiliary torque back-up roll. U.S. Patent, No. 4,381,023. April 26, 1983.

Fronczak, Frank J.; Loehnertz, Stephen P. Powered back-up roll--new technology for peeling veneer. Res. Pap. FPL-428. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1982. 10 p.

Fronczak, Frank J.; Patzer, Robert A. Influence of chuck design on spin-out torque in softwood veneer peeling blocks. Res. Pap. FPL-427. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1982. 14 p.

Garrett, Lawrence D. Moisture loss from felled Eastern hardwood and softwood trees. In: Robertson, Doris, proc. coord. Proceedings, 6th International FPRS industrial wood energy forum '82; 1982 March 8-10; Washington, DC. Dubuque, IA: Kendall/Hunt Publ. Co.; 1983: 210-214. Vol. 1 of proceedings 7334.

Gatchell, Charles J. Get long lengths from No. 2 Common by gang ripping. Furniture Prod. Mag. 46(372): 14-16; 1983. (Also printed in: South. Lumberman 243(3028): 68-69; 1982.)

Gatchell, Charles J. Utilizing low-quality hardwoods. In: Ostrofsky, William D.; OKeefe, Timothy G., eds. Proceedings, Hardwood forest management and utilization symposium; 1982 October 25-26; Orono, ME. Misc. Rep. 279. Orono, ME: University of Maine, Maine Agricultural Experiment Station; 1983: 35-40.

Gatchell, Charles J.; Anderson, R. Bruce; Araman, Philip A. Effect of gang-ripping width on CIF yields from No. 2 Common oak lumber. For. Prod. J. 33(6): 43-48; 1983.

Gatchell, Charles J.; Hansen, Bruce G. Let's talk the same economic language when evaluating System 6 and standard-size hardwood blanks. NE-INF-49-83. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1983. [Not paginated].

Geimer, Robert L. Method of pressing reconstituted lignocellulsic materials. U.S. Patent No. 4,393,019. July 12, 1983.

Geimer, Robert L. Steam injection pressing. In: Proceedings, 16th Washington State University international symposium on particleboard; 1982 March 30-April 1; Pullman, WA. Pullman, WA: Washington State University; 1982: 115-134.

Geimer, Robert. Feasibility of producing reconstituted railroad ties on a commercial scale. Res. Pap. FPL-411. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1982. 7 p.

Giese, Pamela J.; Danielson, Jeanne D. CROMAX a crosscut-first computer simulation program to determine cutting yield. Gen. Tech. Rep. FPL-38. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1983. 39 p.

Giese, Pamela J.; McDonald, Kent A. OPTYLD--a multiple rip-first computer program to maximize cutting yields. Res. Pap. FPL-412. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1982. 32 p.

Gillespie, Robert H. Adhesives for wood composites: present and future. In: Proceedings, International Union of Forestry Research Organizations division 5 conference; 1983 June 27-July 5; Madison, WI. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1983: 97-115.

Gillespie, Robert H. Bonded wood products--a review. J. Adhes. 15: 51-58; 1982.

Hall, Henry J.; Gertjejansen, Roland O.; Schmidt, Elmer L.; [and others]. Preservative treatment effects on mechanical and thickness swelling properties of aspen waferboard. For. Prod. J. 32(11/12): 19-26; 1982.

Hansen, Bruce G.; Reynolds, Hugh W. The economics of System 6 processing of standard-size blanks. NE-INF-47-83. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1983. [Not paginated].

James, William L.; Boone, R. Sidney; Galligan, William L. Using speed of sound in wood to monitor drying in a kiln. For. Prod. J. 32(9): 27-34; 1982.

Johns, William E. Isocyanate bonded aspen flakeboard. For. Prod. J. 32(11/12): 47-50; 1982.

Johns, William E.; Maloney, Thomas M.; Saunders, John B.; [and others]. The effect of species and moisture content on the bonding efficiency of polymeric MDI isocyanate. In: Proceedings, 16th Washington State University international symposium on particleboard; 1982 March 30-April 1; Pullman, WA. Pullman, WA: Washington State University; 1982: 71-98.

Jung, Joseph; Murphy, Joseph F. An investigation of the fracture of butt joints in parallel-laminated veneer. Wood and Fiber Sci. 15(2): 116-134; 1983.

Kelley, S. S.; Young, R. A.; Rammon, R. M.; Gillespie, R. H. Bond formation by wood surface reactions: Part III. Parameters affecting the bond strength of solid wood panels. Forest Prod. J. 33(2): 21-28; 1983.

Kelley, S. S.; Young, R. A.; Rammon, R. M.; Gillespie, R. H. Bond formation by wood surface reactions: Part IV. Analhol, tannin and maleic acid bridging agents. J. Wood Chem. Technol. 2(3): 317-342; 1982.

Kent, Albert C.; Rosen, Howard N. Measurement of humidity above temperature of 100° C with a double-wick wet bulb psychrometer. Drying Technol. Tech. Note 1(1): 141-150; 1983-84.

Koch, P. Moisture changes in oak and hickory fuel chips on roofed and unroofed Louisiana air-drying grounds as affected by pile depth and turning of chips. For. Prod. J. 33(6): 59-61; 1983.

Koch, P. Pulling southern pine with taproots is an economic way to boost wood harvest per acre 20 percent and increase production of naval stores. In: Robertson, Doris, proc. coord. Proceedings, 6th international FPRS industrial wood energy forum '82; 1982 March 8-10; Washington, DC. Dubuque, IA: Kendall/Hunt Publ. Co.; 1982: 85-94. Vol. 1 of proceedings 7334.

Koch, P. Time to dry 8-foot posts of sweetgum, hickory, and oak in Louisiana. South. Lumberman 234(3028): 32-33; 1982.

Koch, Peter. Moisture changes in oak and hickory fuel chips on roofed and unroofed Louisiana air-drying grounds as affected by pile depth and turning of chips. For. Prod. J. 33(6): 59-61; 1983.

Koch, Peter; Springate, Norman C. Hardwood structural flakeboard--development of the industry in North America. J. For. 81(3): 160-161; 1983.

Koenigshof, Gerald A.; Wagner, William G. Improving air quality in under-floor plenum houses. In: Termiticides protection: Proceedings of workshop; 1982 September 22-23; Washington, DC: National Institute of Building Sciences; 1983: 110-116. Available from: National Institute of Building Sciences, Washington, DC.

Laufenberg, Theodore L. Characterizing the nonlinear behavior of flakeboards. Wood and Fiber Sci. 15(1): 47-58; 1983.

Laufenberg, Theodore L. Parallel-laminated veneer processing and performance research review. For. Prod. J. 33(9): 21-28; 1983.

Loehnertz, Stephen P. Industrial performance of powered back-up roll for peeling veener. Res. Pap. FPL-430. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1982. 7 p.

Loehnertz, Stephen P. Laboratory performance of a powered back-up roll for peeling veneer. Res. Pap. FPL-429. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1982. 6 p.

Maeglin, Robert R.; Boone, R. Sidney. An evaluation of saw-dry-rip (SDR) for the manufacture of studs from small ponderosa pine logs. Res. Pap. FPL-435. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1983. 7 p.

Maeglin, Robert R.; Boone, R. Sidney. Manufacture of quality yellow-poplar studs using the saw-dry-rip (SDR) concept. For. Prod. J. 33(3): 10-18; 1983.

Mandzak, John M.; Milner, Kelsey S.; Host, John. Production and product recovery for complete tree utilization. Res. Pap. INT-306. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station; 1983. 17 p.

Markstrom, Donald C.; Troxell, Harry E.; Boldt, Charles E. Wood properties of immature ponderosa pine after thinning. For. Prod. J. 33(4): 33-36; 1983.

Marra, George G. A materials science approach to wood science. In: Proceedings, 9th International symposia on forest science, National Academy of Services; 1981 August 31-September 6; Seoul, Korea. Seoul, Korea: National Academy of Sciences; 1982: 57-86.

Marra, George G. Development of educational modules on wood for colleges of engineering. In: Proceedings, 1982 ASEE annual conference; 1982 June 20-24; College Station, TX. Washington, DC: American Society for Engineering Education; 1982: 725-728.

Marra, George G. Forest products research--an endowment. For. Prod. J. 32(10): 8-14; 1982.

Martin, A. Jeff. Optimum tree size for products having a maximum scaling diameter. J. For. 81(7): 438-439; 1983.

Max, Timothy A.; Snellgrove, Thomas A. Selecting precision levels for measurements. For. Prod. J. 32(11/12): 27-28; 1982.

McDonald, Kent A. Application of ultrasonics in the wood industry. C.S.N.D.T. J. 4(1): 12-14; 1982.

McDonald, Kent A.; Giese, Pamela J.; Woodfin, Richard O. Maximum cutting yields for 6/4 ponderosa pine shop lumber. Res. Pap. FPL-437. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1983. 9 p.

McGovern, J. N.; Berbee, J. G., Bockheim, J. G.; Baker, A. J. Characteristics of combined effluent treatment sludges from several types of pulp and paper mills. Tappi J. 66(3): 115-118; 1983.

McMillin, C. W. Computer numerical control of woodworking machines in secondary manufacture. Gen. Tech. Rep. SO-42. New Orleans, LA: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station; 1983. 24 p.

McMinn, James W. Intensive whole-tree harvesting as a site preparation technique. In: Jones, Earle P., Jr., ed. Proceedings, 2d biennial southern silvicultural research conference; 1982 November 4-5; Atlanta, GA. Gen. Tech. Rep. SE-24. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southeastern Forest Experiment Station; 1983: 59-61.

McMinn, James W. Pine regeneration via fuel chip utilization. Ga. For. Res. Pap. 41. Macon, GA: Georgia Forestry Commission; 1983. 7 p.

McMinn, James W.; Taras, Michael A. Transpirational drying. In: Robertson, Doris, proc. coord. Proceedings, 6th international FPRS industrial wood energy forum '82; 1982 March 8-10; Washington, DC. Dubuque, IA: Kendall Hunt Publ. Co.; 1982: 206-207. Vol. 1 of proceedings 7334.

McNab, W. Henry. Biomass and physical properties of beetle-killed loblolly pines in northeast Georgia. In: Baldwin, V. C., Jr.; Lohrey, R. E., eds. Proceedings, 1982 Southern forest biomass working group workshop; 1982 June 16-18; Alexandria, LA. Baton Rouge, LA: Louisiana State University; 1982: 65-70.

McNab, W. Henry. Total tree and product weight of beetle-killed loblolly pines in the northeast. Ga. For. Res. Pap. 42. Macon, GA: Georgia Forestry Commission; 1983. 11 p.

McNab, W. Henry; Edwards, M. Boyd. Estimating fuelwood yields from overstocked pine regeneration areas. Tappi J. 65(10): 127-128; 1982.

Miceli, Charles M.; Rosen, Howard N.; Spalt, Howard A. Drying small quantities of green hardwoods at home. Res. Pap. NC-228. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 11 p.

Miceli, Charles M.; Rosen, Howard N.; Spalt, Howard A. How to dry small quantities of lumber. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 4 p.

Moye, H. Anson; Roessler, C. E.; Miller, Jerome T.; Wagner, William G. Investigation of ground cover barriers as a means of improving indoor air quality in underfloor plenum houses. Final Report. Res. Pap. DSR 81196pp.1. Gainesville, FL: University of Florida; 1982. 82 p. Available from: National Forest Products Association, Washington, DC.

Murmanis, L. Microscopy of acid-activated bonding in wood. Wood and Fiber Sci. 15(3): 203-211; 1983.

Murmanis, Lidija; River, Bryan H.; Stewart, Harold. Microscopy of abrasive-planed and knife-planed surfaces in wood-adhesive bonds. Wood and Fiber Sci. 15(2): 102-115; 1983.

Myers, Gary C. Properties of hardboards made from tropical hardwoods and aspen chips before and after simulated outdoor storage. For. Prod. J. 33(2): 39-42; 1983.

Myers, George E. Hydrolytic stability of cured urea-formaldehyde resins. Wood Sci. 15(2): 127-138; 1982.

Patterson, David W.; Murphey, Wayne K.; Massey, Joseph G. Moisture content of beetle-killed southern pine timber in eastern Texas. For. Prod. J. 33(1): 67-68; 1983.

Phelps, J. E.; Isebrands, J. G.; Jowett, D. Raw material quality of short-rotation, intensively cultured Populus clones. I. A comparison of stem and branch properties at three spacings. IAWA Bull. n.s. 3(3-4): 193-200; 1982.

Phelps, John E.; McGinnes, E. A., Jr. Growth-quality evaluation of black walnut wood. Part III--An anatomical study of color characteristics of black walnut veneer. Wood and Fiber Sci. 15(3): 212-218; 1983.

Phelps, John E.; McGinnes, E. A., Jr.; Garrett, H. E.; Cox, G. S. Growth-quality evaluation of black walnut wood. Part II--Color analyses of veneer produced on different sites. Wood and Fiber Sci. 15(2): 177-185; 1983.

Plank, Marlin E. Lumber recovery from ponderosa pine in western Montana. Res. Pap. PNW-297. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1982. 24 p.

Pong, W. Y. Lumber recovery from young-growth red and white fir in northern California. Res. Pap. PNW-300. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1982. 14 p.

Radcliffe, Robert C. Wood chunker--design and testing. In: Robertson, Doris, proc. coord. Proceedings, 6th International FPRS industrial wood energy forum '82; 1982 March 8-10; Washington, DC. Dubuque, IA: Kendall/Hunt Publ. Co.; 1983: 71-77. Vol. 1 of proceedings 7334.

Rammon, R. M.; Kelley, S. S.; Young, R. A.; Gillespie, R. H. Bond formation by wood surface reactions: Part II. Chemical mechanisms of nitric acid activation. J. Adhes. 14: 257-282; 1982.

Reynolds, Hugh W. When times are good again for furniture and kitchen cabinet makers. NE-INF-51-83. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1983. [Not paginated].

Reynolds, Hugh W.; Araman, Philip A.; Gatchell, Charles J.; Hansen, Bruce G. System 6 used to make kitchen cabinet C2F blanks from small-diameter, low-grade red oak. Res. Pap. NE-525. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1983. 11 p.

Reynolds, Hugh W.; Araman, Philip A. System 6: making frame-quality blanks from white oak thinnings. Res. Pap. NE-520. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1983. 9 p.

Reynolds, Hugh W.; Gatchell, Charles J. New technology for using low-grade hardwoods: System 6. NE-INF-50-83. Broomall, PA: U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station; 1983. 8 p.

Rice, William W.; Gatchell, Charles J. Application of System 6 technology to New England red oak. North. Logger and Timber Process. 31(12): 10-11, 20-21, 23; 1983.

River, Bryan H. A comparison of accelerated and real-time service life estimates of four elastomer-based mastic construction adhesives. In: Proceedings, 1982 fall seminar and technical miniseminar of the Adhesive and Sealant Council; October 17-20; Chicago, Il. Arlington, VA: Adhesive and Sealand Council; 1982: 204-218.

Rosen, Howard N.; Bodkin, Robert E.; Gaddis, Kenneth D. Pressure steam drying of lumber. For. Prod. J. 33(1): 17-24; 1983.

Rosen, Howard N.; Laurie, Scott E. Mechanical properties of conventionally kiln-dried and pressure steam-dried yellow-poplar and red oak. For. Prod. J. [Tech. Note] 33(1): 50-52; 1983.

Sachet, Janet K. Ayer. Programable calculator programs to solve softwood volume and value equations. Gen. Tech. Rep. PNW-143. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1982. 12 p.

Sampson, George R.; Ruppert, Forrest A. Potential for economical recovery of fuel from land clearing residue in interior Alaska. Res. Pap PNW-308. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1983. 10 p.

Sandoe, M. D.; Wellons, J. D.; Parker, R. J.; Jokerst, R. Gluability of platen-dried veneer of Douglas-fir. For. Prod. J. 33(7/8): 57-62; 1983.

Sarles, Raymond, L.; Wartluft, Jeffrey L.; Whitenack, Kenneth R. Chain saw felling in hardwood thinnings. In: Proceedings, Harvesting the South's small trees; 1983 April 18-20; Biloxi, MS. Madison, WI: Forest Products Research Society; 1983: [pages unknown].

Saucier, Joseph R. Tupelo an American wood. FS-269. Washington, DC: U.S. Department of Agriculture, Forest Service; 1982. 6 p.

Schiess, Peter; Schuh, Donald; Miyata, Edwin S.; Mann, Charles N. Concept evaluation of a walking feller-buncher: the Kaiser X5M Spyder. In: Lynch, Dennis L., ed. Timber harvesting in the central Rockies: problems and opportunities: Proceedings of a conference; 1983 January 4-6; Fort Collins, CO. Publ. XCM-87 Fort Collins, CO: Cooperative Extension Service, Colorado State University; 1983: 166-212.

Simpson, William. Maintaining lumber quality in rapid drying systems by manipulating sawing patterns. In: Ashworth, John C., ed. Proceedings, 3rd International drying symposium; 1982 September 13-16; Birmingham, England. Wolverhampton, England: Drying Research Limited; 1982: 2: 202-211.

Sinclair, S. A.; Govett, R. L. Production and distribution of balsam fir lumber in eastern North America. For. Chron. 59(6): 128-131; 1983.

Snell, J. A. Kendall; Little, Susan N. Predicting crown weight and bole volume of five western hardwoods. Gen. Tech. Rep. PNW-151. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Forest and Range Experiment Station; 1983. 37 p.

Snell, J. A. Kendall; Max, Timothy A.; Snellgrove, Thomas A. Breakage of timber and quantity of woody material damaged by eruption of Mount St. Helens. In: Keller, S. A. C., ed. Mount St. Helens: one year later: Proceedings of a symposium; 1981 May 17-18; Cheney, WA. Cheney, WA: Eastern Washington University Press; 1982: 87-91.

Snellgrove, Thomas A.; Ernst, Susan A. Veneer recovery from live and dead lodgepole pine. For. Prod. J. 33(6): 21-26; 1983.

Snellgrove, Thomas A.; Snell, J. A. Kendall; Max, Timothy A. Damage to National Forest timber on Mount St. Helens. J. For. 81(6): 368-371; 1983.

Steinhilb, Helmuth M.; Miyata, Edwin S.; Crow, Thomas R. Green above-stump weights for red oak, red maple, and white birch in northern Michigan. Res. Pap. NC-230. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1983. 4 p.

Stern, E. George. Performance of pallet joints and pallets assembled with nails and staples. Pallet and Container Lab. Bull. 2. Blacksburg, VA: Virginia Polytechnic Institute and State University, Department of Forest Products; 1980. 8 p.

Stewart, Harold A. Some possible tool-wear causes and cures when machining MDF. Furniture Des. & Manuf. 55(2): 28-29, 31-32, 34, 36-37; 1983.

Stewart, Harold A.; Rosen, Howard N.; Huber, Henry A.; Rausher, Arthur A. 4/4 hardwood dimension from short bolts: economic and processing comparison of conventional and innovative production. For. Prod. J. 32(11/12): 71-76; 1982.

Sturos, Joseph B.; Coyer, Lynne A.; Arola, Rodger A. Air drying of chunkwood and chips. Res. Note NC-293. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1983. 4 p.

Tang, R. C.; Price, E. W.; Chen, C. C. Hygroscopic effect on linear expansion of wood-based composites. In: Proceedings, 1982 joint conference on experimental mechanics, Society of Experimental Stress Analysis and Japan Society of Mechanical Engineers; 1982 May 23-28; Oahu-Maui, HI. Brookfield, CT: Society for Experimental Stress Analysis; 1982: 118-124.

Timson, Floyd G. Size-volume classification of Appalachian hardwood sawlog harvesting residue. South. J. Appl. For. 7(1): 24-26; 1983.

Wallin, Walter B.; Whitenack, Kenneth R. Application of joint performance criteria to pallet design. Pallet Enterp. 1(5): 24-27; 1982.

Wartluft, Jeffrey L. How to season firewood. Pop. Mech. 160(3): 122; 1983.

Wellons, J. D.; Krahmer, Robert L.; Sandoe, Michael D.; Jokerst, Ronald W. Thickness loss in hot-pressed plywood. For. Prod. J. 33(1): 27-34; 1983.

Winter, John D.; April, Gary C.; McKinley, Marvin D.; Rosen, Howard N. Mathematical simulation of lumber drying with superheated steam above one atmosphere. In: Ames, W. F., et al., eds. Proceedings, 10th IMACS world congress on system simulation and scientific computation; 1982 August 8-13; Montreal, Quebec, Canada. Montreal, Quebec, Canada: IMACS/North-Holland Publ. Co.; 1983; 3: 21-25.

Youngquist, John A. Powered back-up roll--a way to improve hardwood veneer yields. In: Proceedings, 1982 conference of western forestry nursery council; 1982 May 12-15; Cashiers, NC. Asheville, NC: Hardwood Research Council; 1983: 66-80.

Youngquist, John A. Research progress in wood-based comoosite products. In: Advances in production of forest products: Forest Products Division symposium; 1981 November 8-12; New Orleans, LA. AIChE Symp. Ser. 79(223). New York, NY: American Institute of Chemical Engineers; 1983: 79-87.

Protection of Wood in Use

Bendtsen, B. A.; Gjovik, L. R.; Verrill, S. P. Mechanical properties of longleaf pine treated with waterborne salt preservatives. Res. Pap. FPL-434. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1983. 16 p.

Chen, George C.; Johnson, Bruce R. Improved colorimetric determination of cell wall chitin in wood decay fungi. Appl. Environ. Microbiol. 46(1): 13-16; 1983.

DeGroot, Rodney C. Quantifying potentials for wood decay. In: How the environment affects lumber design: assessments and recommendations; 1980 May 28-30; Madison, WI. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1982: 52-54.

Gjovik, L. R.; Gutzmer, D. I. Comparison of wood preservatives in stake tests (1981 progress report). Res. Note FPL-02. Madison, WI: U.S. Department of Agriculture, Forest Service, Forest Products Laboratory; 1981. 82 p.

Gjovik, Lee R.; Micklewright, James T. Wood preservation: how important is the wood treating industry. South. Lumberman 243(3028): 34-36; 1982.

Johnson, Bruce R. A look at creosote vs. chromated copper arsenate salts as wood preservatives for the marine environment. Ind. Eng. Chem. Prod. Res. Dev. 21(4): 704-705; 1982.

Johnson, Bruce R. Effects of polyoxin inhibitors of fungal chitin synthesis on decay of wood. International Biodeterioration Bull. ISSN 0020-6164 18(2): 37-42; 1982.

Kalnins, Martins A. Chemical modification of wood for improved decay resistance. Wood Sci. 15(2): 81-89; 1982.

Nilsson, Thomas; Rowell, Roger M. Decay patterns observed in oxide modified ponderosa pine attacked by Fomitopsis pinicola. Doc. No. IRG/WP/1183. Stockholm, Sweden: Swedish University of Agricultural Science; 1983. 5 p.

Rowell, Roger M. Bioactive polymer-wood composites. In: Roseman T. J.; Mansdorf, S. Z., eds. Chap. 23. Controlled release delivery systems. New York, NY: Marcel Dekker, Inc.; 1983: 347-357.

Rowell, Roger M. Wood preservation and stabilization by chemical modification of the wood substance. In: Chemical aspects of wood technology. STFI Ser. A 772. Stockholm, Sweden: Swedish Forest Products Research Laboratory; 1982: 32-49.

Wegner, T. H.; Holmes, C. A. Efficient application of boron fire retardant to cellulosic loose-fill insulation. In: Govan, F. A.; Greason, D. M.; McAllister, J. D., eds. Thermal insulation, materials, and systems for energy conservation in the 80's. ASTM STP 789. Philadelphia, PA: American Society for Testing and Materials; 1983: 100-113.

Williams, R. Sam. Effect of grafted UV stabilizers on wood surface erosion and clear coating performance. Appl. Polymer Sci. 28: 2093-2103; 1983.

General

Bessenyei, Helvi M.; Evans, Peter A., comp. International directory of forestry and forest products libraries. Rep. USDA-FS-PSW-82-95. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station; 1982. 91 p.

Dravnieks, Daina; Pitcher, Donald C. Public participation in resource planning: selected literature abstracts. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Management Sciences Staff; 1982. 77 p.

Dravnieks, Daina; Valfer, Ernst. The management of policy and direction in the Forest Service: executive summary. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Management Sciences Staff; 1982. 13 p.

Dravnieks, Daina; Valfer, Ernst; Stolins, Russel. The management of policy and direction in the Forest Service. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Management Sciences Staff; 1982. 200 p., various pagination.

Garrett, Lawrence D. Interdisciplinary research for multi-resource forest management: an example. In: Russel, M. G., ed. Enabling interdisciplinary research: perspectives from agriculture, forestry, and home economics. Misc. Publ. 19. St. Paul, MN: University of Minnesota Agricultural Experiment Station; 1982: 147-152.

Kossuth, Susan V. Employer's responsibilities to young female and minority professionals in forestry. In: America's hardwood forest--opportunity unlimited. Proceedings, 198 convention of the Society of American Foresters; 1982 September 19-22; Cincinnati, OH. SAF 83-04. Bethesda, MD: Society of American Foresters; 1983: 298-300.

Krugman, S. L.; Cowling, E. B. Our natural resources: basic research needs in forestry and renewable resources, National task force on basic research in forestry and renewable natural resources; 1979 Fall; Milford, PA. Moscow, ID: University of Idaho, The Forest, Wildlife, and Range Experiment Station; 1982. 35 p.

Lugo, A. E. La naturaleza y limites del ecosistema puertorriqueno [Nature and limits of the Island of Puerto Rico]. Bol. Acad. Artes y Ciencias de Puerto Rico 19 (1-2): 1-33; 1982.

Lugo, A. E.; Brown, S. Tropical lands: popular misconceptions. Mazingira 5(2): 10-19; 1981.

Magill, Arthur W. The reluctant public servants. J. For. 81(3): 200(facing); 1983.

Sentman, Lance A. The keepability study. Northwest lookout. 1981 September: 14, 16-20.

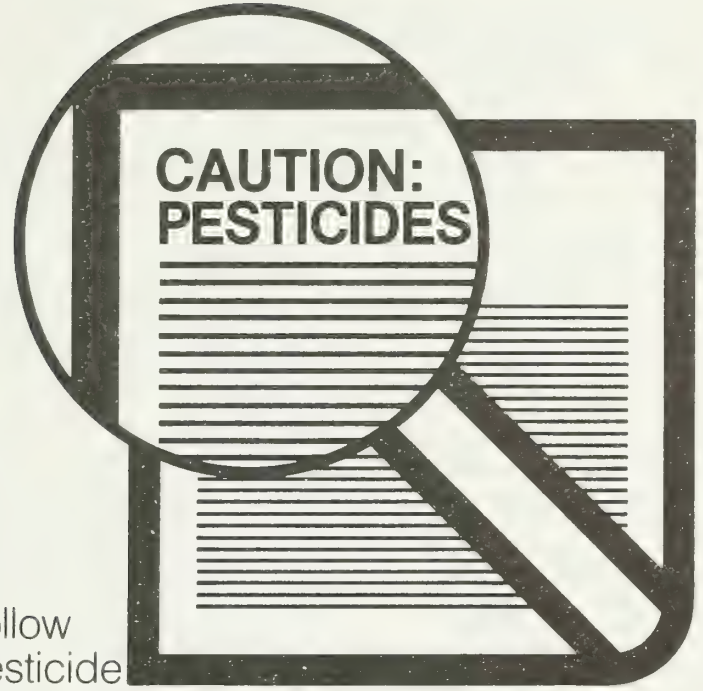
Sklar, Fred; Ames, Richard G. Corporate philanthropy and inner-city social action groups: can partnership policies succeed? J. Voluntary Action Res. 12(2): 46-58; 1983.

Weaver, P. L. Forestry research in the Tapajos National Forest, Santarem, Brasil. Tech. Rep. FO:BRA/82/008. Brasilia, Brasil: FAO; 1983. 71 p.

Weintraub, Andres; Adams, Richard; Yellin, Linda. Land management planning: a method of evaluating alternatives. Res. Pap. PSW-167. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station; 1982. 12 p.

Yerke, Theodor B., comp. Forestry information systems and terminology. Invited and contribued papers presented at sessions of section 6.03, 17th world congress of the International Union of Forestry Research Organizations; 1981 September 6-17; Kyoto, Japan. Berkeley, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Forest and Range Experiment Station; 1982. 163 p.

Youngs, Robert L. Every age, the age of wood. Interdisciplinary Sci. Rev. 7(3): 211-219; 1982.



Follow
Pesticide
Label Exactly

Research Headquarters

FPL Forest Products Laboratory
Gifford Pinchot Drive
P.O. Box 5130
Madison, WI 53705

INT Intermountain Forest and Range
Experiment Station
507 25th St.
Ogden, UT 84401

NC North Central Forest
Experiment Station
1992 Folwell Ave.
St. Paul, MN 55108

NE Northeastern Forest Experiment
Station
370 Reed Rd.
Broomall, PA 19008

PNW Pacific Northwest Forest and
Range
Experiment Station
809 NE 6th Ave.
Portland, OR 97232

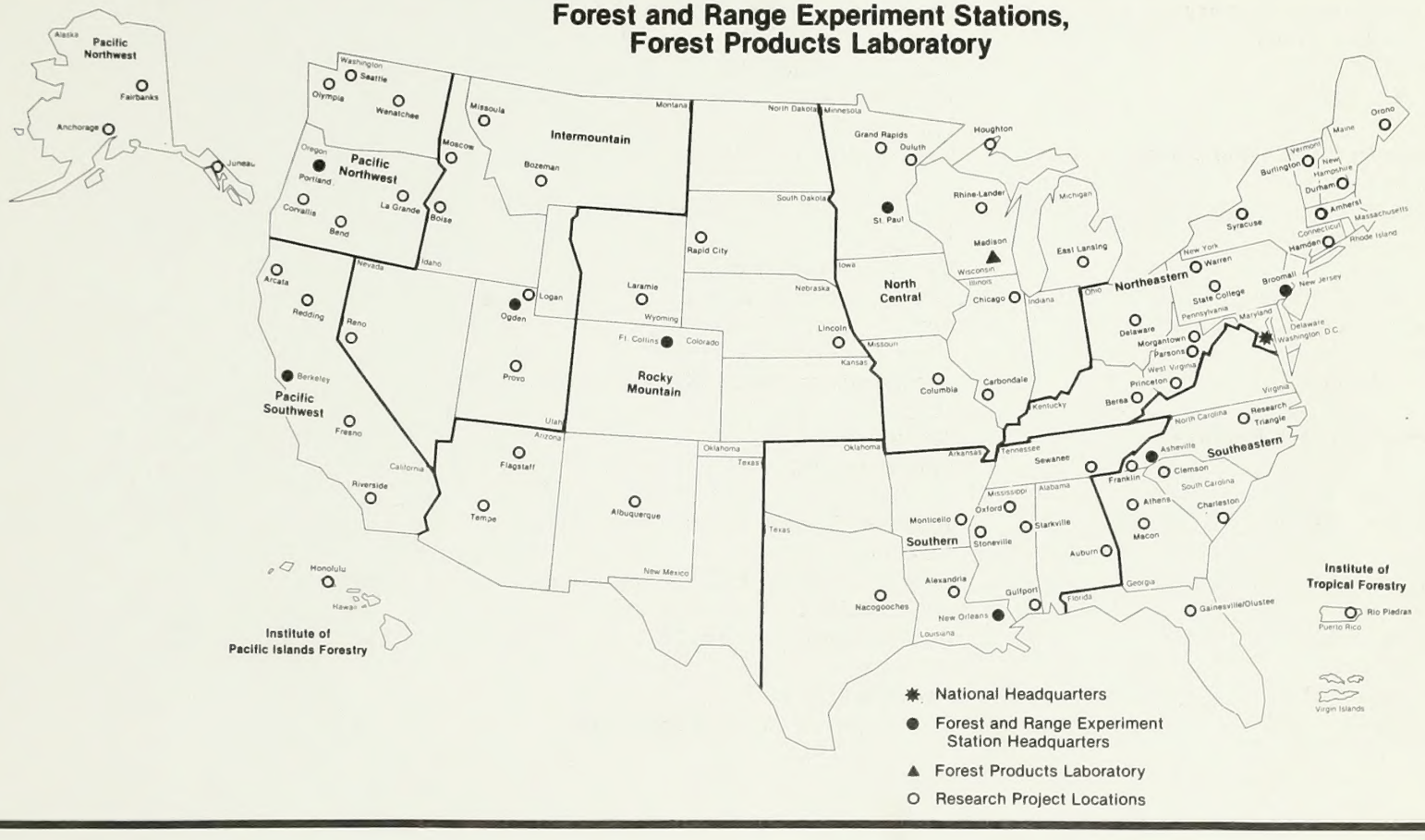
PSW Pacific Southwest Forest and
Range
Experiment Station
1960 Addison St.
P.O. Box 245
Berkeley, CA 94701

RM Rocky Mountain Forest and
Range
Experiment Station
240 West Prospect St.
Fort Collins, CO 80526

SE Southeastern Forest Experiment
Station
200 Weaver Blvd.
Asheville, NC 28804

SO Southern Forest Experiment
Station
T-10210 U.S. Postal Service Bldg.
701 Loyola Ave.
New Orleans, LA 70113

WO Forest Service
U.S. Department of Agriculture
P.O. Box 2417
Washington, DC 20013



☆ U. S. GOVERNMENT PRINTING OFFICE : 1984 446-955/18785