

094074



REPORT TO THE CONGRESS

Increased Use Of Felled Wood
Would Help Meet Timber Demand
And Reduce Environmental
Damage In Federal Forests B-125053

Department of Agriculture
Department of the Interior

B-125053

**BY THE COMPTROLLER GENERAL
OF THE UNITED STATES**

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JULY 30, 1973

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ABBREVIATIONS

BIA Bureau of Indian Affairs
BLM Bureau of Land Management
GAO General Accounting Office

COMPTROLLER GENERAL'S
REPORT TO THE CONGRESS

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WHY THE REVIEW WAS MADE

Each year Agriculture's Forest Service and Interior's Bureaus of Land Management (BLM) and Indian Affairs (BIA) sell standing timber under contracts to thousands of purchasers

The agencies require purchasers to cut down designated trees in timber sale areas. The purchasers decide which felled wood to remove and have left large volumes in the sale areas

Because unremoved felled wood often creates environmental problems and because shortages in timber supply are expected, GAO made this review to learn whether unremoved felled wood was usable and, if it was, to evaluate what the three agencies were doing or could do to insure maximum desirable use of wood felled in future sale areas

GAO reviewed these matters in Washington, D C., Oregon, Wisconsin, Georgia, Utah, and Louisiana

Photos throughout the report illustrate various aspects of the felled wood problem

FINDINGS AND CONCLUSIONS

To help insure the maximum desirable use of wood felled in future Federal timber sale areas and thereby help

meet the growing demand for wood and lessen the undesirable economic and environmental effects of leaving too much felled wood in the forests, the agencies needed to take action to

- insure that purchasers remove all felled wood that, on a sale-area basis, can be economically marketed,
- insure that, in determining what is marketable and in setting the minimum selling price, adequate consideration is given to the various economic and environmental benefits that the Government could realize if more usable felled wood were removed from the sale areas and used, and
- explore ways of increasing wood-processing capabilities to insure optimum use of felled wood

Background

The three agencies manage about 121 million acres, or about 95 percent, of the total commercial forest land managed by all Federal agencies. This land contains about 40 percent of the Nation's commercial timber (See p 5)

During fiscal year 1972, about 14.1 billion board feet of timber was harvested from land managed by the three agencies. Of this,

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11.7 billion board feet came from Forest Service land. The agencies collected gross timber sale revenues that year totaling about \$451.5 million, including about \$38 million collected by BIA for the sale of Indian-owned timber. (See p. 7.)

The President's Cabinet Committee Task Force on Softwood Lumber and Plywood said there could be a gap between timber supply and demand in 1974 which could result in higher prices and fewer houses built. (See p. 7.)

Effects of leaving felled wood in timber sale areas

Although the agencies did not have specific data available on the amounts of economically marketable felled wood that had been left in their sale areas, information obtained from the Forest Service showed that the large volumes of unremoved felled wood have included large quantities physically suitable for making wood products.

For example, a Forest Service researcher, who reported that more than 400 million cubic feet--equivalent in volume to about 2.4 billion board feet--of usable felled wood was left in the three agencies' sale areas in California, Oregon, and Washington in 1969, told GAO that this wood had been physically suitable for lumber, plywood, or fiberwood products. He did not estimate, however, what portions were suitable for each of these products or how much the purchasers could have economically marketed. (See p. 13.)

Other Forest Service reports published in 1965 and 1972 indicated that the felled wood left in Federal, State, and private logged over areas on the Pacific coast had included large quantities of logs of the size

normally used to make lumber and plywood, for which there is a strong demand. (See p. 14.)

Felled wood remaining in sale areas

--often caused delays in planting new trees and problems in applying cultural practices to speed their growth (see p. 16),

--created serious fire hazards resulting in damages considerably greater than in areas where felled wood was not present (see p. 18),

--caused air pollution (from unintentional fires or intentional ones to reduce the fire hazard and facilitate replanting), water pollution, and damages to natural beauty (see p. 19), and

--often led to cost increases in various forest management practices, such as fire protection, fire suppression, tree planting, and tree thinning (see p. 22)

Conditions not conducive to optimum use of wood

Although specific data was not available on how much unremoved felled wood could have been economically marketed, GAO identified two conditions not conducive to obtaining the maximum desirable use of wood felled in Federal timber sale areas.

First, under timber sale contracting procedures

--The agencies designated which trees were to be felled and set minimum selling prices for wood meeting minimum merchantability standards but did not require that purchasers remove all wood meeting the minimum standards. Therefore, the purchasers were not prohibited from moving

from one sale area to another after removing only the best timber.

--No provision was made for considering, in establishing minimum merchantability standards and setting the minimum selling price, the economic and environmental benefits to the Government if more usable felled wood were removed and used. Therefore, some usable felled wood was not considered merchantable and not included in the selling price determination, although the benefits to the Government from removing and using it may have been greater than any price reductions that might have resulted from including it in the sale (See p 22)

Second, in many locations the absence or limited capability of such wood-processing facilities as sawmills, plywood plants, pulp mills, and particleboard plants made it impractical to remove all usable wood included in a sale

The agencies had not explored whether, where, and how Federal financial and other assistance might be provided in increasing wood-processing capabilities (See p. 27.)

Compared with Federal agencies, some large private companies which own and manage land for timber production have far less felled wood left on their land after harvesting. Although differences in age and quality of trees appear to be contributing factors, these companies are able to use more felled wood from their land because

--They are not faced with contractual problems confronting Federal agencies.

--They consider benefits to be gained by increased removal

--They have integrated wood-processing facilities that can produce a variety of wood products (See p 25.)

The Forest Service adopted action plans in June 1972 directed at increasing the use of wood felled in its sale areas. The plans, however, did not deal fully with conditions identified by GAO as not conducive to the maximum desirable use of felled wood (See p 29)

Resolving such problems will require changes in contracting methods, procedures, and requirements and may warrant Federal assistance in establishing or improving wood-processing facilities (See p 31)

RECOMMENDATIONS

The Forest Service, BLM, and BIA should

--modify timber sale procedures to insure that purchasers are required to remove economically usable felled wood that can be processed by facilities in the sale area vicinity (for example, an appraisal zone),

--establish methods and procedures under which economic and environmental benefits to the Government from increased use of felled wood will be recognized in determining the amount to be removed from the sale area, considering the feasibility of shipping wood outside the sale area vicinity,

--ascertain, and set as a national goal, the optimum level for use of

CHAPTER 1

INTRODUCTION

The Forest Service, Department of Agriculture, and the Bureaus of Land Management (BLM) and Indian Affairs (BIA), Department of the Interior, manage about 121 million acres, or about 95 percent, of the total commercial forest lands managed by all Federal agencies. These lands contain about 40 percent of the Nation's commercial timber.

Each year the three agencies sell standing timber under contracts to thousands of purchasers. The agencies require the purchasers to cut down designated trees in the sale areas, but the purchasers decide which felled wood to remove. Because unremoved felled wood often creates environmental and other forest management problems and because shortages in the timber supply are expected, we made this review to find out whether the felled wood left in the agencies' timber sale areas was usable and, if it was, to evaluate what the three agencies were doing or could do to insure optimum use of wood felled in future sale areas.

FOREST MANAGEMENT OBJECTIVES

Legislation¹ provides that the agencies manage forest land for a sustained high-level output of resources--timber, range, recreation, watersheds, fish, and wildlife--to meet public demands without impairing the land's productivity.

Also, pursuant to the National Environmental Policy Act of 1969 (42 U.S.C. 4321), the Forest Service, BLM, and BIA are responsible for carrying out forest management programs.

¹The management of Forest Service lands is authorized by the 1960 Multiple Use and Sustained Yield Act (16 U.S.C. 528), the management of BLM lands is authorized by the act of August 28, 1937 (43 U.S.C. 1181a), and the act of July 31, 1947 (30 U.S.C. 601). In managing its lands, BLM also follows the objectives that were set forth in the 1964 Classification and Multiple Use Act (43 U.S.C. 1411). BIA management of Indian forestry units is authorized by the act of June 18, 1934 (25 U.S.C. 466).

that promote "safe, healthful, productive, and esthetically and culturally pleasing surroundings." The President directed the heads of Federal agencies to continually monitor, evaluate, and control their agencies' activities to protect and enhance the environment

TIMBER SALE AND USE

One of the agencies' primary forest management activities is the management of timber resources, including the sale of timber to purchasers ranging from large corporations to individual buyers. Some purchasers harvest timber and sell it to wood-processing companies, while other purchasers harvest timber and process it in their own facilities. Processing facilities vary from small sawmills producing lumber to large facilities producing a variety of wood products

Harvested timber has three broad uses--sawtimber, poles, and fiberwood--from which numerous finished wood products and derivatives are obtained. Many of these products are used in constructing houses. Sawtimber is used to produce lumber and plywood for constructing buildings and for such products as furniture, crates, boxes, pallets, and railroad ties. Poles (logs or sections of logs) are used for such items as fencing, pilings, and telephone poles. Fiberwood is used to produce construction materials, such as building board (hardboard, particleboard, fiberboard, and insulation board) and pulp, which is used to make paper, rayon, cellophane, and other products.

TIMBER SUPPLY

There is a growing demand for timber in this country. In 1970 the President's Cabinet Committee Task Force on Softwood Lumber and Plywood reported that the growing demand could produce a shortage of timber by 1974 and that such a shortage could act as a constraint on achieving the Nation's housing goals unless effective programs were developed to expand timber availability. In response to the task force report, the President directed the Secretaries of Agriculture and the Interior to formulate plans that would permit an increased harvest of softwood timber consistent with sustained yield and environmental quality objectives.

The level of timber harvesting on Forest Service, BLM, and BIA land during fiscal year 1972 was 14.1 billion board feet, of which 11.7 billion board feet came from Forest Service land. The agencies collected gross timber sale revenues that year totaling \$451.5 million, including about \$38 million collected by BIA for the sale of Indian-owned timber.

The Forest Service has indicated that the annual harvest on its land can be increased to about 20 billion board feet by the year 2000, provided that sufficient funds and personnel are available on a timely basis to carry out more intensive forestry practices to increase the timber growth rate.

BLM has indicated that it intends to continue harvesting at about the same annual levels throughout the decade. BIA has stated that it could increase its sustained annual harvest by about 150 million board feet if sufficient funds are available for adequate protection, forest development, and timber sale administration.

The Congress and the public, however, have been concerned about whether the timber output from federally managed lands can be increased or even continued at current levels without depleting the timber supply and sacrificing other forest resource use and environmental quality objectives. Officials in four Forest Service regions have indicated that the Forest Service may have difficulty in increasing the future timber yield because of growing demands to use forest lands for recreation and other purposes.

According to the 1970 task force report, a shortage in timber supply could occur even if the Forest Service increases its harvest level. The report stated, in part, that

"Even if the Forest Service is authorized to move ahead promptly with a program for greater intensity of management, with due regard to environmental objectives, the increase in the timber harvest from National forests for 1974 would not be much over 2 billion board feet. An additional 6 billion board feet might be obtained from private holdings and larger net imports. This would still leave an apparent gap of about 3 billion

board feet, or more than 5 percent of indicated demand. If these forecasts are correct, the gap would presumably be closed with higher prices, accompanied by accelerated substitution, and possibly a shortfall in the number of units built. While these estimates cannot be precise, it is evident that the balance will be at best precarious "

Because of environmental considerations and the expected shortages in the future timber supply, it is important that the agencies make every effort to obtain the optimum use of all usable wood

CHAPTER 2

ACTIONS NEEDED TO INCREASE THE USE OF WOOD FELLED IN FEDERAL TIMBER SALE AREAS

Forest Service research studies and other information show that each year timber purchasers leave large volumes of trees and parts of trees felled in Forest Service, BLM, and BIA timber sale areas. Actions are needed to increase the use of wood felled in future timber sale areas because unremoved felled wood in past sale areas

- included large quantities that could have been used for lumber, plywood, and fiberwood products, assuming that it could have been marketed,
- often caused delays in planting new trees and problems in carrying out cultural practices to speed up their growth, and thereby resulted in loss of timber growth,
- created a serious fire hazard,
- caused environmental damages, such as air pollution (from burning), water pollution, and marring of natural beauty, and
- often increased the costs of various forest management and protection practices, including fire protection and suppression and tree planting and thinning

The agencies did not have specific data on the amounts of economically marketable felled wood that purchasers had left in Federal timber sale areas. We identified two basic conditions, however, that were not conducive to the optimum use of wood felled in such areas

- Under their contracting procedures and methods, the agencies neither required purchasers to remove all merchantable felled wood nor provided for adequately considering, in determining what was merchantable and setting the minimum selling price, the various economic and environmental benefits that could have been realized if more usable felled wood were removed from the sale areas and used.

Under the circumstances, the agencies did not prohibit a purchaser from moving from one sale area to another after he removed only the best timber. Further, some usable felled wood was not considered merchantable and not included in the selling price determination although the benefits to the Government from removing and using it may have been greater than any price reduction that might have resulted from including it in the sale.

--The lack, or the limited capability, of wood-processing facilities in some locations reduced purchasers' capability to profitably market usable felled wood.

Solving these problems will require innovations in the agencies' contracting procedures and methods and may warrant Federal assistance in establishing more wood-processing facilities or in increasing the capability of existing facilities.

Forest Service and BLM officials have recognized that leaving felled wood in sale areas is a major problem. In August 1971, the Chief of the Forest Service assigned a special committee of Forest Service personnel to evaluate the problem. In June 1972 the Forest Service adopted several recommendations and action plans proposed by the special committee and assigned various Forest Service organizations the responsibility for implementing them within specific target dates. Those recommendations were directed at increased use of wood felled in Forest Service sale areas. The action plans, however, did not deal fully with the conditions we identified as not conducive to optimum use of felled wood.

USABLE FELLED WOOD LEFT IN SALE AREAS

Timber purchasers have left large volumes of felled wood in Forest Service, BLM, and BIA sale areas in many different timber-producing regions. (See pictures 1 through 5.) The agencies must dispose of unremoved felled wood to reduce the fire hazard and facilitate regrowth of trees. (See p. 16.)

According to Forest Service research studies and other information, much of the felled wood left in the sale areas



1 Portion of a Forest Service timber sale area after harvesting, Pacific Northwest Region



2 Portion of a Forest Service timber sale area after harvesting, Pacific Northwest Region

(Photographs furnished by the Forest Service)



3 Portion of a BLM timber sale area after harvesting, Oregon



4 Portion of a BLM timber sale area after harvesting, Oregon

(Photographs furnished by BLM)



(GAO photograph)

5 Portion of a Forest Service timber sale area after harvesting, Southern Region

was physically suitable for lumber, plywood, and fiberwood products. The agencies did not have specific data, however, on how much of the felled wood could have been economically marketed.

A Forest Service research study report¹ and supplementary information obtained from the research analyst who made the study showed that in 1969 about 400 million cubic feet of usable felled wood--equivalent to about one-fifth of the 1972 nationwide timber harvest on Forest Service, BLM, and BIA land--was left in Forest Service, BLM, and BIA sale areas in Oregon, Washington, and California. The Forest Service research analyst told us that the felled wood was physically suitable for plywood, lumber, or fiberwood. The analyst's study did not include estimates of what portions of the total volume were suitable for each of these products or how much could have been economically marketed by the purchasers.

¹Volume of Logging Residue in Oregon, Washington and California--Initial Results From a 1969-70 Study, Forest Service, Department of Agriculture, August, 1971

Forest Service reports published both before and after the research study indicated, however, that substantial volumes of such wood were of the size normally suitable for lumber and plywood, for which there is a strong demand. For example

--A 1965 Forest Service report on U S. timber trends stated that nearly 400 million cubic feet of logging residues, including 1.5 billion board feet¹ of wood included in the sawtimber (timber suitable for making lumber and plywood) inventory, had been left behind annually on Federal, State, and private logged-over areas on the Pacific coast.

--A 1972 Forest Service report on forest statistics for the United States showed that about 525 million cubic feet of logging residues, including about 1.6 billion board feet of wood included in the sawtimber inventory, was left on Federal, State, and private logged-over areas on the Pacific coast during 1970.

The above reports did not state why the timber purchasers did not remove the felled wood. The research report stated, however, that, as economic and technological changes occur, felled wood being left in sale areas may represent a substantial base for increases in paper and board production with no additional drain on the timber resource.

Forest Service officials in the Intermountain Region told us that the volume of felled wood left in Forest Service sale areas in that region--which includes national forests in Wyoming, Idaho, Utah, and Nevada--was significant, but that no studies for determining that region's overall volume had been made. One Forest Service research study² showed that felled wood left in a typical lodgepole pine

¹According to Forest Service measurement standards, 1 billion board feet of sawtimber is equivalent to about 167 million cubic feet.

²Utilization of Lodgepole Pine Residue in Wyoming Increases Fibre Yield, Forest Service, Department of Agriculture, March, 1972.

sale area in Wyoming would amount to about 3,600 cubic feet per acre. Regional officials told us that nearly all of the felled wood left in Forest Service sale areas in that region was physically suitable for fiberwood products and that some was suitable for lumber.

Information obtained from a Forest Service research official in the Forest Service's Northern Region--which includes national forests in North Dakota, South Dakota, Montana, Idaho, and Washington--indicated that large volumes of felled wood had been left in sale areas in that region. Forest Service researchers had surveyed several sale areas in two national forests in western Montana and estimated that an average of more than 100 tons of felled wood per acre¹ had been left in the areas. The researchers estimated that 90 percent of this felled wood was 4 inches or more in diameter at the small end. Forest Service officials stated that felled wood of that size is suitable for fiberboard, pulp, or lumber, depending upon its quality.

Forest Service officials in the Eastern Region, which includes national forests in 12 States, and the Southern Region, which includes national forests in 13 States, told us that, although the problem in those regions was not as great as in other Forest Service regions, about 2 to 10 percent of the felled wood which met merchantability standards for lumber, pulp, and fiberboard products was left in sale areas in their regions. They stated that other felled wood left in the sale areas was below the standards but was physically suitable for lumber, pulp, or fiberboard products.

¹On the basis of conversion factors furnished by Forest Service officials, 100 tons per acre is roughly 6,410 cubic feet per acre.

OTHER EFFECTS OF LEAVING LARGE VOLUMES
OF FELLED WOOD IN SALE AREAS

Some felled wood left in sale areas can provide such benefits as seed sources, shade, and moisture conservation for new trees. The large volumes of felled wood left in sale areas, however, often delay the regrowth of timber, create serious fire hazards, cause environmental damage, and lead to increased administrative costs. Increasing the use of felled wood would lessen each of these undesirable effects

Loss of timber regrowth

The presence of felled wood in sale areas often results in delays in planting new trees and causes problems in carrying out cultural practices to speed up their growth. Forest Service headquarters officials acknowledged that increased use of felled wood--necessitating the removal of more felled wood from sale areas--could reduce delays in replanting

Before new trees are planted in logged-over areas, the remaining felled wood is generally burned, crushed, or chipped to reduce the fire hazard and facilitate replanting and other activities. (See pictures 6 and 7)

Timber management officials of the Forest Service's Pacific Northwest Region estimated that planting new trees in Oregon and Washington is delayed an average of 3 years because the remaining felled wood must be treated. They estimated that the region's annual timber growth could be increased by 11 percent, or 47 million board feet, if the delays were eliminated. On the basis that it takes 10,000 board feet to construct a typical one-family house, this volume of timber would be enough to build 4,700 houses each year.

Forest Service officials in the Eastern and the Intermountain Regions estimated that the regions' annual timber growth could be increased by 10 million board feet (enough timber to build 1,000 houses) if replanting delays caused by the presence of felled wood were eliminated.

A BLM official told us that the annual growth of timber on BLM lands in western Oregon could be increased if replanting delays attributable to the treatment of felled wood were



6 Burning unused wood on Forest Service land in the Intermountain Region



7 Crushing unused wood on Forest Service land in the Northern Region

(Photographs furnished by the Forest Service)

eliminated. A BIA field office official told us that planting new trees in BIA sale areas in Oregon, Washington, and Idaho was sometimes delayed a year or more because the remaining felled wood had to be treated.

A 1972 Forest Service report¹ stated that even treated felled wood in areas being replanted resulted in improper spacing of seeds or seedlings and made it difficult to thin and prune trees to promote their maximum growth.

Fire hazards

Forest Service research study reports, other Forest Service records, and our discussions with Forest Service, BLM, and BIA officials in various field locations indicated that felled wood remaining in sale areas can create fire hazards which result in considerably greater fire damage than in areas where such material is not present.

For example, in January 1972 a Forest Service official told a State air pollution control commission that all wild-fires over 200 acres in size in the Forest Service Northern Region in 1970 involved felled wood remaining in sale areas, which made it difficult to bring the fires under control. The Forest Service's 1970 fire report did not show how many fires in that region covered more than 200 acres, it showed, however, that the region had 30 fires that covered more than 100 acres each, including 14 fires that covered more than 300 acres each. Forest Service headquarters officials told us that some of these fires were not in sale areas.

As another example, a 1968 Forest Service research study report² stated that, during a 9-year period in one national forest in the Pacific Northwest Region, fires in sale areas containing felled wood burned areas about 60 times larger than fires in other areas.

¹Report of Close Timber Utilization Committee, Forest Service, Department of Agriculture, June, 1972.

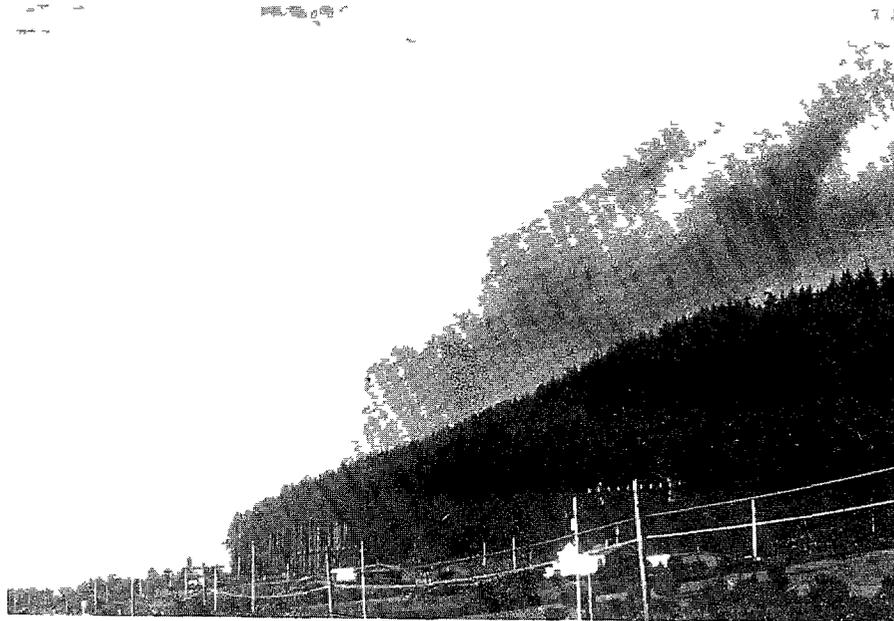
²Impacts of Forest Residues and Their Disposal on Forest Land Management and Environment in the Pacific Northwest, Forest Service, Department of Agriculture, June, 1968

During efforts to reduce the fire hazard by controlled burning of felled wood remaining in sale areas, the fires sometimes escape and burn adjacent stands of timber. For example, in May 1971 one such fire burned about 15,000 acres in the Superior National Forest in Minnesota. In September 1971 three other such fires burned about 1,000 acres in the Mt Hood National Forest in Oregon. According to Forest Service fire reports, these four fires caused about \$550,000 worth of timber damages.

Environmental damage

Burning unremoved felled wood causes air pollution (See pictures 8 and 9). For example, Forest Service fire control officials told us that such burning in national forests in Oregon, Washington, Montana, and Idaho was a factor in producing a pall of smoke which blanketed the Pacific Northwest during the first week of October 1970.

Forest Service studies show that the smoke from such burning may affect visibility and interact with pollutants from other sources to affect human health. In some areas the Forest Service has reduced or eliminated such burning because of State regulations and adverse public reaction.



(Photograph furnished by the Forest Service)

8 Smoke caused by burning unused wood on Forest Service land in the Pacific Northwest Region



(Photograph furnished by the Forest Service)

9 Smoke caused by burning unused wood on Forest Service land in the Pacific Northwest Region

Such restrictions on burning will require that more expensive methods be used for treating felled wood. Increased use of felled wood would reduce the volume of such material requiring burning or other treatment.

Felled wood left in sale areas can also cause water pollution. (See pictures 10 and 11.) A report issued in 1970 by the Department of the Interior's Federal Water Pollution Control Administration (absorbed by the Environmental Protection Agency) stated that wood remaining in sale areas in or adjacent to stream channels can degrade the quality of water in the streams.

The 1972 Forest Service report (see p. 18) stated that, where unused wood has recently been burned, soil nutrients may also be leached into streams, stimulating the growth of unwanted water plants and directly reducing water quality. Forest Service headquarters officials told us that the increase in soil nutrients is generally short-lived and that such nutrients on the ground can often be beneficial to the regrowth of trees.

Many people consider felled wood left in Forest Service, BLM, and BIA sale areas an esthetically unpleasant contrast.



10 A streambed and bridge jammed with unused wood on BLM land in Oregon



11 Unused wood in a stream on BLM land in Oregon

(Photographs furnished by BLM)

to the natural forest environment (See pictures 12 and 13)
A 1968 Forest Service inspection report stated that unused wood left in the national forests had damaged the esthetic value of thousands of vistas in the Pacific Northwest. The disordered appearance of a sale area containing felled wood may persist for many years before the material deteriorates or is camouflaged by new vegetation.

Increased administrative costs

Felled wood left in sale areas often leads to increases in the costs of various forest management and protection practices, including fire protection, fire suppression, tree planting, and tree thinning. Although we could not readily determine the amount of increased costs incurred by the agencies each year because of felled wood, limited information indicated that such increased costs had been substantial and that reducing the volume of felled wood left in sale areas would have reduced these costs. For example, the Forest Service, BLM, and BIA spent about \$11.6 million in fiscal year 1970 and about \$14.8 million in fiscal year 1971 to treat felled wood, primarily to reduce fire hazards.

The 1968 Forest Service research study report cited on page 18 stated that removing usable felled wood substantially decreases the fire hazard and can significantly reduce hazard abatement costs. The report stated also that, in one national forest in Oregon, fire suppression costs in areas containing felled wood were about 65 times greater than fire suppression costs in other areas. Also, according to Forest Service records, suppressing the fires that escaped while felled wood was being burned in the Superior and Mt. Hood National Forests (see p. 19) cost about \$781,000.

CONDITIONS NOT CONDUCIVE TO OPTIMUM USE OF FELLED WOOD

Contracting procedures and methods

The Forest Service, BLM, and BIA advertise and sell standing timber to the highest bidder, at not less than its minimum appraised value, which is based on wood meeting minimum merchantability standards. Each agency designates which trees in a sale area the purchaser is to fell. In some sales, all trees within the sale area are designated for cutting (clear-cutting). In other sales, only selected trees in the area are designated.



12 Disordered appearance caused by unused wood left after harvesting on a BIA timber sale area in Washington



13 Unused wood on this BIA timber sale area in Washington continues to have an impact on esthetic value more than 13 years after completion of harvesting

(Photographs furnished by BIA)

Although the agencies' timber sale contracts generally provided for the purchaser to pay for felled wood meeting the minimum standards, the purchaser decided which felled wood to remove. His decision was based on his assessment of how much and what types of felled wood he could most profitably remove from the sale area. Under the circumstances the agencies did not have adequate assurance that the purchasers removed all usable felled wood that met the minimum standards.

Also, the determinations of what was merchantable were made on the basis of the economics, capability, and custom of the timber industry in the general area of the sale. They did not consider the economic and environmental benefits that the Government could realize if the purchasers removed and used more of the usable felled wood. Therefore, some usable felled wood was not considered merchantable and included in the minimum selling price determination, although the benefits to the Government from removing and using it may have been greater than any price reduction that might have resulted from including it in the sale.

The 1968 Forest Service research report cited on page 18 commented on the problem of leaving the size and type of felled wood to be removed from sale areas to the purchaser.

"The timber purchaser's aim in removing wood from sales areas is maximum profit from extraction and processing, he understandably resists doing anything that reduces operating profit, no matter how much it may contribute to the total efficiency of forest management and timber production."

Similarly, a special committee assigned by the Forest Service to study the problem of how to obtain better use of felled wood in sale areas stated in its June 1972 report (see p. 18) that

"By tradition, the 'marginal-log' concept is a fundamental logging principle.

"The marginal log is the smallest log or poorest quality log which pays its way out of the woods. Theoretically, this log and all larger logs will be removed by a prudent operator. If a timber operator removes logs smaller than the marginal log, he will reduce his profits.

"The 'marginal log' concept produces two major problems. First, if ample timber is available, an operator can increase profits by 'high grading'. An ample supply of good timber encourages him to move onto another sale after cutting only the best timber and leaving timber which has no economic value.

"Second, the marginal-log concept has traditionally been oriented toward maximizing net benefits for the timber operator rather than the landowner. There should be few landowners, including the Government (representing the public), who are willing to accept a situation where maximizing benefits to itself are subordinated to maximizing benefits to a second party."

According to the 1968 research report quoted above, the problems of using felled wood are not as acute on lands owned by large private companies with integrated wood-processing facilities. Also a 1971 Forest Service research report stated that, on the basis of a sample inventory of felled wood left during the 1969 timber harvest, the felled wood per acre on Forest Service, BLM, and BIA cutover lands in western Oregon and western Washington was more than 50 percent greater than the felled wood per acre on private companies' cutover lands.

Representatives of some large private companies told us that they had reduced the various problems associated with felled wood remaining on their land and increased the use of the wood by establishing and enforcing timber removal requirements. They said that in doing so, they had considered the benefits of removing more felled wood from the harvest areas, such as reduced need for burning, quicker reforestation, and easier movement of men and equipment to carry out management practices. The companies' representatives stated that their efforts to increase the amount of wood used were enhanced because they had integrated facilities that could produce many types of wood products.

The 1968 Forest Service research report cited similar factors favoring increased use of felled wood on land of large private companies. Interior told us that private companies could use more felled wood also because they had generally younger and healthier timber and their cleaner timber-harvesting operations resulted in improved public relations.

Under Forest Service, BLM, and BIA methods and procedures for selling timber (1) the purchaser's costs for removing wood from the sale area must be covered by his selling price, (2) the agencies' contracts are timber sale contracts rather than service contracts--used by the private companies whose representatives we interviewed--under which operators are paid for removing the wood, (3) the agencies sell timber to many purchasers who do not have integrated processing facilities, and (4) the purchaser decides what to remove from the sale area without considering the Government's overall forestry management objectives

The two types of Federal timber sale contracts generally used by the agencies have not contained removal requirements. Under one type, normally used by the Forest Service and BIA, the purchaser (1) paid a predetermined price per board foot (or other unit of measure) for felled wood removed from the sale area and (2) could be charged for merchantable felled wood left in the sale area. Under the other type of contract, normally used by BLM, the purchaser paid a lump-sum price for the total estimated volume of merchantable wood designated for cutting, regardless of what he actually removed. Under either type of contract, the purchaser decided what to remove

In a letter to the Chief of the Forest Service in November 1971, an acting regional forester stated, in part, that

"One major obstacle [to increased use of felled wood] is our contractual inability to require timber * * * purchasers to remove merchantable timber designated for cutting under the contract. This obstacle could be quickly overcome by revising the provisions in the timber sale contract but would probably be strongly resisted by the timber industry

"Our field units feel strongly that this material should be removed from the sale area without any option of the Purchaser if we are to reduce air pollution, slash burning, and site preparation costs, and to demonstrate concern about avoidable waste in timber harvesting "

Lack of adequate processing facilities

In many locations the lack, or the limited capability, of wood-processing facilities, such as sawmills, plywood plants, pulp mills, and particleboard plants, makes it impractical or uneconomical to remove all usable wood included in a sale. This problem could continue to preclude the optimum use of felled wood even if the agencies modified their contracting procedures and methods to overcome the problems discussed in the preceding section.

By letter dated October 12, 1971, the Chief of the Forest Service requested the nine Forest Service regional offices to provide information on problems related to timber utilization. In response six regional offices cited the lack, or the limited capability, of such facilities as pulp mills and particleboard plants as obstacles to increased use of felled wood suitable for fiberwood products.

For example, the Intermountain Region stated (1) paper and particleboard industries would be needed to more fully utilize the large volume of wood, (2) the closest manufacturing facilities for these types of products were located considerable distances from the intermountain area, and (3) increasing the use of felled wood would depend on establishing manufacturing plants closer to the area.

Forest Service information indicated also that existing sawtimber facilities in many locations cannot manufacture, or cannot manufacture economically, lumber from the types and sizes of logs that can be made into lumber. Forest Service headquarters officials told us that, although they did not have precise information on this, there was potential for increasing the use of felled wood by improving the capability of sawtimber facilities.

Agriculture, in its letter dated December 11, 1972 (see app I), pointed out that differences in the plant capability mixes in each geographic area would have to be considered in establishing or modifying wood use standards. It said that utilization of logs as small as 4 inches in diameter at the small end may be proper in one area, while an 8-inch diameter may be appropriate in others.

The Forest Service's minimum merchantability standards for sawtimber--established in each Forest Service region on the basis of the capability and custom of the sawtimber industry--are general indicators of differences in capabilities of sawtimber-processing facilities in different geographic areas

For example, the minimum size standards for all species of sawtimber in the douglas fir subregion of the Pacific Northwest Region were 6 inches in diameter at the small end and 8 feet long. For the California Region, the minimum size standards were 10 inches in diameter at the small end and 10 feet long. In response to the October 1971 request from the Chief of the Forest Service, the California Region stated that a major obstacle to increased use of felled wood in that region was the general lack of plant capacity and market for small logs, low-grade logs, and other material.

Merchantability standards for sawtimber also differ among locations on the minimum number of board feet recoverable from a log. For example, in the Rocky Mountain Region, a log meeting the established minimum diameter and length standards would have to contain at least 10 board feet to be considered merchantable, whereas in the douglas fir subregion of the Pacific Northwest Region, a log meeting the same minimum diameter and length standards would have to contain at least 30 board feet to be considered merchantable.

In discussing the regional variances in merchantability standards, Forest Service headquarters officials told us that

- Regional standards were general consensus standards for each region, standards could vary among different locations in a region

- Although variances in standards were attributable to several factors, such as dominant tree sizes, quality and age of the trees, and transportation distances, such variances were influenced significantly by the capabilities of processing facilities

The solution to the waste problems in areas without adequate facilities to process usable felled wood will require either shipping the felled wood to facilities outside

the local marketing area or establishing or improving processing facilities. Under current contracting methods and procedures, the purchaser determines the amount of felled wood to ship to facilities outside the local marketing area. Benefits that could be realized if more felled wood were shipped are not adequately considered.

The Forest Service has entered into a few long-term contracts to continuously supply purchasers with wood as an incentive for the purchasers to construct processing facilities in areas where they are needed for normal harvesting purposes. Also, other Federal agencies, such as the Small Business Administration, have provided financial assistance for constructing processing facilities. Neither the Forest Service nor the other agencies, however, have explored whether, where, and how financial and other Federal assistance should be provided to increase the use of felled wood.

The Rural Development Act of 1972 (86 Stat. 657) provides for greatly expanded rural development programs to provide technical and financial assistance in the development of business opportunities for rural residents. The act appears to offer increased opportunities for establishing or improving wood-processing facilities where the lack, or limited capability, of such facilities seriously impedes the use of usable wood felled in Federal timber sale areas.

AGENCY EFFORTS TO INCREASE USE OF WOOD FELLED IN SALE AREAS

Forest Service and BLM officials have recognized that leaving large volumes of felled wood in sale areas is a major problem.

The Forest Service has been, and plans to continue, conducting extensive research into various aspects of the problems associated with felled wood left in sale areas and into ways to obtain greater use of such wood. Also, in August 1971, the Chief of the Forest Service assigned a special committee of Forest Service personnel to evaluate the problem and make recommendations for increasing the use of felled wood.

The committee's June 1972 report described various aspects of the problem and recommended that the Forest Service

- Prepare a plan for determining the quantity and types of logging residues The committee stated that the lack of such data made it difficult to appraise the scope of the problem and the availability of fiberwood for new industries
- Develop interim standards on the volume of felled wood that can be left in sale areas without causing problems
- Study alternative timber sale arrangements and procedures The committee stated that there were many sale arrangements that might be superior to the traditional methods of selling standing trees and giving the buyers the responsibility to fell the trees and remove them from the sale areas, including (1) sale of timber products, such as logs, instead of standing trees, (2) extending buyers' responsibilities to include land management practices, such as debris treatment and tree planting, and (3) alternative pricing procedures
- Adopt a policy that recognizes that the timber operator must make a fair profit but that still requires him to remove or treat felled wood when this is the most efficient method of reducing residue The committee stated that the Forest Service timber appraisal for a sale could take into account the expected costs of meeting this requirement
- Change the timber sale contract so that it clearly states that the Forest Service has the right to require the removal of specified material

In June 1972 the Chief of the Forest Service approved the committee's recommendations as an action plan and assigned various Forest Service organizations the responsibility for implementing them within specified target dates

Although the Forest Service's plan was directed at increasing the use of wood felled in Forest Service sale areas, it left open the question of whether purchasers will be required to remove felled wood that can be profitably processed by accessible facilities

The plan did not provide for establishing methods and procedures for considering the various economic and environmental benefits that the Government could realize if the purchaser removed more felled wood. Also, the plan did not call for exploring whether, where, and how Federal assistance could and should be provided to establish or improve wood-processing facilities to insure optimum use of felled wood

CONCLUSIONS

Leaving large volumes of usable felled wood in Federal timber sale areas is not in harmony with the Government's forest management objectives of sustained yield and environmental protection. In view of the expected shortages in supply and the several undesirable economic and environmental effects of leaving the wood, the agencies should make strong efforts to insure that all economically usable wood felled in timber sale areas is removed and used in manufacturing wood products

Such efforts should deal with the inadequacy of the agencies' contracting procedures and methods and the lack, or limited capability, of wood-processing facilities in some areas

The agencies need to revise their contracts to require that purchasers remove usable felled wood meeting specifications established on the basis of what can be economically processed by existing facilities in the vicinity of the sale area or appraisal zone. We do not advocate that purchasers be required to remove felled wood that cannot be used in manufacturing wood products. Such requirements might result in transferring the disposal problem to more populated areas

We recognize the need for the purchaser to realize a fair profit on the overall volume of wood required to be

removed from a sale area. In establishing the appraised value (minimum selling price) for timber, the agencies should consider profit in light of removal requirements, as should prospective purchasers in their bidding on sales.

The agencies should also establish some means for recognizing in the contracting process the various economic and environmental benefits that the Government could realize through increased use of felled wood. The agencies could consider such benefits in establishing on a sale-area basis the appraised value for timber to be removed and advertising for bids. Under such procedures, individual logs or other units of wood which are usable but would not "pay their own way out of the woods" could be included in the overall volume to be removed.

In some cases, such benefits may make it desirable to deviate from the traditional method of selling standing timber. As discussed on page 30, the Forest Service believes that there are many sale arrangements that might be superior to the traditional procedure of selling standing trees and relying on the buyers to fell the trees and remove them from the sale areas.

Regardless of the sale arrangements, recognizing the economic and environmental benefits could justify shipping usable felled wood--which would otherwise be wasted--to more distant locations for processing or could warrant Federal assistance in establishing or improving wood-processing facilities in some areas.

The agencies should explore whether, where, and how Federal assistance should be provided in establishing or improving wood-processing facilities. They should ascertain, and set as a national goal, the optimum level for the use of felled wood that can be attained under the best timber-processing technology available. Federal assistance could be in such forms as (1) long-term agreements to supply purchasers with wood or (2) technical and financial assistance in constructing or improving needed facilities.

We do not advocate such assistance unless it can be shown, on a case-by-case basis, that it would result in

improved forest management or would contribute significantly to accomplishing other Federal program objectives, such as rural development

The provisions in the Rural Development Act of 1972 for expanded Department of Agriculture assistance in developing rural business enterprises appear to offer increased opportunities to help establish or improve needed wood-processing facilities. Such assistance could (1) help to increase the use of usable felled wood that otherwise will be wasted and (2) contribute to the Government's overall goal of revitalizing rural America.

RECOMMENDATIONS TO THE SECRETARIES
OF AGRICULTURE AND THE INTERIOR

We recommend that the Forest Service, BLM, and BIA

- modify timber sale procedures to insure that purchasers are required to remove economically usable felled wood that can be processed by facilities in the sale area vicinity (for example, an appraisal zone),
- establish methods and procedures under which economic and environmental benefits to the Government from increased use of felled wood will be recognized in determining the amount to be removed from the sale area, considering the feasibility of shipping wood outside the sale area vicinity,
- ascertain, and set as a national goal, the optimum level for use of wood felled in sale areas that can be attained under the best timber-processing technology available, and
- identify areas where local processing facilities are inadequate to insure optimum use and explore whether and how Federal assistance should be provided to increase timber-processing capabilities.

AGENCIES' COMMENTS AND OUR EVALUATION

Agriculture (see app I) substantially agreed with our recommendations and stated that plans were being or would be developed to implement them. It stated that it believed the crux of the utilization problem was supply and demand imbalances and that such imbalances would have to be considered in connection with implementing our recommendations. Agriculture stated that

- generally, the most severe problems with felled wood left in sale areas occur in harvesting overmature timber, from which the production of sawtimber produces large volumes of material suitable only for fiberwood products, such as paper and fiberboard,
- while sound sawtimber is in short supply, the supply of fiberwood greatly exceeds demand,
- the problem is further complicated because overmature timber is most in need of harvest if future forest yields are to be increased, and
- deferring the harvest of overmature stands not only reduces potential future yields but, because of increased mortality and decay, results in a higher proportion of wood usable only for fiberwood products

We recognize that the relationship between supply and demand for the various types of wood products (sawtimber, poles, and fiberwood) directly influences whether and how much the use of felled wood can be increased. We recognize also that Forest Service studies indicate that the supply of fiberwood exceeds demand.

However, information compiled by Forest Service researchers and other personnel indicated that the large volumes of felled wood left in sale areas has included significant volumes of material of the size normally used to make lumber for which Agriculture states a heavy demand exists. Further, the Chief of the Forest Service, during a meeting of a wood products association in September 1972, commented on the problem of vast quantities of wood left after logging.

"A disturbing factor in this problem is that a very significant portion (some 60 percent) of these residues consists of large logs which can be removed at reasonable cost with existing equipment "

Also we noted one case in which felled wood remaining in a Forest Service sale area was sold to another buyer after the original purchaser had removed the felled wood he wanted. In a letter to the district ranger dated November 30, 1971, the timber sale officer who made this sale stated that

"It is significant that this sale on 23 acres removed more than a quarter of a million board feet of utilizeable wood after the original sale was closed "

The timber sale officer told us that about two-thirds of the felled wood removed from the area, after the original sale was closed, was used for lumber and plywood and about one-third was used for fiberwood

With respect to modifying sale procedures to require removal of usable felled wood, Agriculture stated that

- Purchasers should be required to remove timber that meets utilization standards and that, although this was the intent of present Forest Service contracts which provide for payment in lieu of removal under certain circumstances, it was considering changes which would eliminate payment as a substitute for removal
- Since a continuing strong demand for timber suitable for lumber and plywood seemed likely, it was appropriate at this time to require removal of such timber in all areas subject to utilization standards appropriate for different geographic areas and related to the capacity of existing plants and the plant capability mix found in each area
- Generally an appraisal zone would be a proper area for assessing plant capabilities

--It did not believe it appropriate to require removal of fiber material developed in producing sawtimber until there is a reasonable assurance of continuing demand but that, as demand increases, it expects to require the removal of increasing volumes of fiber material

. In May 1973 Agriculture announced that, as one of several steps to increase the timber supply, the Forest Service would change its timber sale contracts to require that purchasers remove specified material from sale areas

On the other recommendations, Agriculture stated that

- Although limited demand may hinder its ability to remove all felled wood, it agreed with, and would develop a plan for implementing, the recommendation that methods and procedures be established for considering economic and environmental benefits to the Government in determining the amount of felled wood to be removed
- It generally agreed that a national goal on the optimum level for using felled wood within the best technology should be ascertained and set, to do this, it needed to develop a system to inventory and classify present residue levels, and it was preparing an action plan to develop such a system
- Generally, there were few areas in which additional facilities of some kind would not tend to improve utilization but, although it agreed in principle that areas needing processing facilities should be identified and their relative needs evaluated, it believed such identification and evaluation must be deferred until the system for inventorying and classifying present residue levels is developed
- It agreed that means of providing Federal assistance in improving wood-processing capabilities should be explored but, because there may be relatively few worthwhile opportunities for direct Federal involvement in the construction of new plants, the major thrust of Federal action should be more indirect, such as (1) supplying information on available wood

supplies so that firms wishing to build new plants can make wise decisions and (2) developing and promoting the use of improved manufacturing processes which either produce more products from a unit of timber or use wood in new ways Agriculture said that encouraging business to use new processes might well include making Federal loans available

We believe that the actions proposed by Agriculture are important steps toward increasing the use of felled wood

Interior commented specifically on our recommendations with respect to BLM land only (See app II) It said that BIA's program, which is not funded sufficiently to attain its full allowable cut of merchantable sawtimber, is not in a position to devote special effort to increasing the use of submarginal material that remains after all economically usable felled wood is removed Therefore, Interior stated, our findings and recommendations may not be fully appropriate for Indian-owned land managed in trust by BIA

Interior suggested that, under the existing arrangement between the Government and the Indian people, it would be reasonable for the Government to pay for removing usable felled wood on which a purchaser could not realize a profit, particularly in view of the increased timber production and environmental benefits that could accrue to the Government Interior indicated that the Indian people usually receive the maximum price for timber and that prices would be lowered if sales contracts were to require removal of marginal wood Interior said that prices received for the timber are immediate or very early dollar benefits, whereas the benefits that could be realized through increased removal of felled wood are intangible and/or long-range benefits

We agree that the trust arrangement with respect to BIA-administered land poses special problems Within the framework of our recommendations, however, we believe that there is potential for removing more felled wood from BIA timber sale areas because BIA timber sales contracts do not require that purchasers remove all usable felled wood that can be profitably marketed Further, on some occasions, Indians have expressed concern about the volume of felled wood left in some BIA sale areas, which indicates that they might be receptive to procedural changes which would increase the removal of such material

Interior stated that a distinction should be made between usable felled wood and economically usable felled wood and that practically all felled wood on which purchasers could realize a profit had been removed under timber sale contracts executed during the last 10 years. It stated that good management favors optimum use of all sound wood fiber and that, although the "marginal log" concept--which results in only the best timber being removed from a sale area--influences the volume of logging residue left in BLM sale areas, it believed that the lump-sum contracts normally used by BLM provide incentives for removing all timber sold.

A BLM headquarters official told us, however, that BLM had not specifically studied sale areas to ascertain that purchasers had removed all felled wood on which they could have realized profits and that, in some instances, the original buyer had removed only the material he wanted from the sale area and BLM had sold the remaining felled wood to a second buyer.

In commenting on our recommendations as they related to BLM land, Interior discussed various potential problems or conditions which it believed would be encountered in implementing the recommendations. It stated that

- The degree of use would be influenced by supply and demand
- If all usable felled wood was removed, the Government would have to pay for removing economically marginal felled wood--a major change in policy that would require thorough study before implementation
- Although it would be desirable to establish methods and procedures for recognizing economic and environmental benefits to the Government in determining the amount of felled wood to be removed, research is needed in the area of wood use and related environmental benefits
- Careful policy consideration is needed of whether benefits attainable from increased removal will justify additional Government costs for such increased removal

--The recommendation that a national goal on the optimum level for using felled wood within existing technology be ascertained and set, which seemed more applicable to harvesting of overmature timber stands, was perhaps the primary recommendation which should be implemented before a concerted effort is made toward maximum industrial use of usable felled wood. Interior said, however, that before the recommendation is implemented, basic research is needed on both the adverse and beneficial effects of leaving felled wood in sale areas.

We recognize that problems will be encountered in implementing the recommendations and that various conditions will have to be considered in efforts to increase the use of wood felled in sale areas. We emphasize, however, that our recommendations are intended as a general framework under which the wood utilization problem may be approached.

Agriculture has expressed a willingness to deal with the various problems and conditions within the recommended framework. A similar effort by Interior would be desirable.

Interior stated that our recommendation concerning processing facilities suggested that BLM take a new direction and assume responsibilities beyond those of a land-management agency. It pointed out that the Forest Service has long been involved in improving and expanding markets for wood. Interior said that BLM may need congressional authorization to participate in implementing the recommendation.

We believe, and a BLM headquarters official agreed, that, although the Forest Service should take the lead, BLM has authority to help identify problem areas and explore whether and how Federal assistance should be provided in improving timber-processing capabilities. Any improvements brought about by such assistance could benefit any timberland manager in the area.

The two Departments should coordinate their efforts to increase the use of felled wood so that (1) their expertise and knowledge can be brought to bear on the complex problems involved and (2) uniformity can be provided in developing modified policies, procedures, and contractual requirements to increase the use of felled wood. Such uniformity is particularly important because the agencies sell timber in the same market areas.

CHAPTER 3

SCOPE OF REVIEW

We reviewed applicable legislation and the agencies' policies, procedures, and practices relating to the sale, harvest, and use of timber. We also reviewed agency records and reports, including Forest Service research records and publications, relating to felled wood left in sale areas and to problems created by the presence of such wood. We also observed some timber sale areas where harvesting was in process or had been completed.

We discussed these matters with Forest Service, BLM, and BIA officials in the agencies' Washington headquarters and in each of the following field locations:

Forest Service

Regional Offices--Portland, Oregon, Ogden, Utah,
Milwaukee, Wisconsin, and Atlanta, Georgia

Forest Products Laboratory--Madison, Wisconsin

Experiment Stations--Portland, Oregon, Ogden, Utah,
and New Orleans, Louisiana

Bureau of Land Management

Oregon State Office--Portland, Oregon

Bureau of Indian Affairs

Portland Area Office--Portland, Oregon

We also discussed timber management and utilization practices with representatives of some private companies that owned and managed large amounts of land for timber production.

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

Washington, D C 20250

2430
December 11, 1972



Mr Richard J Woods
Assistant Director
Resources and Economic Development Division
General Accounting Office
Washington, D. C. 20548

Dear Mr. Woods

We have read your draft report on "Actions Needed To Increase The Use Of Felled Trees In Federal Timber Sale Areas" with much interest. This report does a fine job in identifying the magnitude of the forest residues problem. In particular, we are pleased with the emphasis given to what we think are the significant points, namely, (1) that the Nation cannot afford to waste wood and (2) that there are effects on management costs which result from leaving residues on the land. Your public support will be most helpful to us in our efforts to reduce residues, as for example, in implementing the recommendations of the Close Timber Utilization Committee.

A general criticism of the report, however, is that it does not treat meaningfully what we believe is the crux of the problem, namely, supply-demand imbalances. Generally speaking, the most severe problems with logging residues occur in the harvest of overmature timber stands. The production of sawtimber from such stands also produces large volumes of material suitable only for fiber-type products (paper, fiberboard, etc). The problem is that while sound sawtimber is in short supply, the supply of fiber material greatly exceeds demand. The problem is further complicated by the fact that overmature stands are most in need of harvest if future forest yields are to be increased. Deferring the harvest of such stands not only reduces potential yield, but results--through increased mortality and decay--in a higher proportion of wood usable only for fiber. We think the report should clearly explain these problems.

Recommendation - "Modify timber sale procedures to require the purchaser to remove felled wood that can be processed by existing processing facilities in the vicinity of the sale area."

APPENDIX I

Comment - We agree that purchasers should be required to remove timber to defined utilization standards. This is the intent of present Forest Service contracts. However, present contracts provide for payment in lieu of removal under certain circumstances. We are presently considering changes which would eliminate payment as a substitute for removal.

Some very careful judgments will need to be made, however, in determining utilization standards appropriate for different geographic areas. Since it seems likely that there will be continuing strong demand for timber suitable for manufacture into lumber and plywood we believe it appropriate at this time to require removal of such timber in all areas. This is not to say that utilization standards will be identical for all areas. In each area we will need to establish utilization standards which relate to the plant capability "mix" found in that area. This is our present practice. Thus, in one area, utilization to a 4" top may be proper, while 8" may be appropriate in others.

With respect to material suitable only for fiber which is developed in producing sawtimber, we do not believe it is appropriate to require removal until there is reasonable assurance of continuing demand. If, in the absence of increased demand, purchasers are required to remove large volumes of this material, they must either use it in substitution for material removed from other areas or otherwise dispose of it off National Forest land, thus transferring the problem to more populated areas. As demand increases, we would expect to require the removal of increasing volumes of fiber material.

We agree that capabilities of existing plants need to be considered in establishing utilization standards for either sawtimber or fiber material. However, the fact that a given stand component can be manufactured by one or more existing plants must be tempered by an assessment of the potential supply. While it may be appropriate to require the removal of a greater volume than is presently being utilized, we should not suddenly require removal of volumes far in excess of the capacity of existing plants to absorb.

The tributary area for which an assessment of plant capabilities is to be made also requires much judgment. As a general rule, we believe an appraisal zone is a proper area, because of the close relationship between utilization standards and appraisal data (end product selling prices and operating costs). Establishing zone-wide utilization standards tends to minimize problems of extreme variation which could result from evaluating use "in the vicinity of the sale area."

Recommendation - "Establish methods and procedures under which the various economic and environmental benefits to the Government from increased use of felled wood can be recognized in determining the amount of felled wood to be removed from the sale area, giving consideration to the feasibility of shipping wood outside the vicinity of the sale area "

Comment - We agree and will develop a plan for implementing this recommendation. We would point out, however, that even when such procedures are available, limited demand may limit our ability to remove all of the material.

Recommendation - "Ascertain and set as a National goal the optimum level for the use of felled wood in sale areas that can be attained under the best timber processing technology available "

Comment - We are generally in agreement. As a first step, we need to develop a system for inventorying and classifying present residue levels. An action plan for developing such a system is to be prepared by January 1, 1973, in response to recommendation I of the Close Timber Utilization Committee. When we are able to inventory the material we can begin to address ourselves to the question of what portions can be utilized with existing technology. While there is some value in estimating the amounts usable under the best technology, we will want to base removal requirements on utilization attainable with the existing "mix" of technology.

Recommendation - "Identify the areas where processing facilities are inadequate to ensure optimum use and evaluate the relative needs for Federal actions to improve the use of felled wood in such areas "

Comment - We agree in principle, but believe that implementation must be deferred pending development of an inventory system as discussed above. As a generality, there are few areas in which additional facilities of some kind would not tend to improve utilization. We know in a general way where the problem areas are (for example, the Pacific Northwest) but within these broad areas there are major differences in the intensity of the problem. In our view, no purpose would be served in attempting to rank opportunities for new facilities until we are able to inventory volumes and characteristics of the material much more precisely.

Recommendation - "In those areas of significant need, explore ways and means for providing Federal assistance in developing additional timber processing capabilities "

APPENDIX I

Comment - We agree, but would point out that in our view there will be relatively few worthwhile opportunities for direct Federal involvement in the construction of new plants. We believe that the major thrust of Federal action should be more indirect. For one thing, most wood products compete in National markets. Thus, the construction of a new plant may disrupt existing trade patterns. Over the long run, the free interplay of supply and demand does a pretty good job of determining the locations and types of plants which are needed. However, the Forest Service can assist in two ways. First, we can supply information on available supplies so that firms wishing to build new plants can make wise decisions. In a broad way, this is one of the functions of the periodic assessment of timber supply made by the Forest Service (i.e., Timber Trends). Residue inventories as discussed above will be useful to fiber-using firms. Second, we can develop and promote the use of improved manufacturing processes which either produce more products from a unit of timber (such as the best-opening-face technique) or use wood (particularly fiber) in new ways (structural shapes from particle board, for example).

Encouraging business to use these new processes might well include making Federal loans available.

Thank you for giving us an opportunity to comment on your draft report.

Sincerely,



Acting Chief

APPENDIX II

financially, in solving the problems created by excessive logging debris, we would have to accept less than maximum dollar prices from the sales of timber. Good management favors the concept of optimum utilization of all sound wood fiber. We believe the "lump sum" type of timber sale contract, customarily used by the Bureau of Land Management, but not mentioned in the Draft Report, tends to favor greater utilization of the tree than does the unit or scale sale contract. This practice of many decades standing is specific in providing incentive for the utilization of all the timber sold. Nevertheless, the "marginal log" concept does influence the volume of logging residues left in the woods on a "lump sum" contract area.

We emphasize that the preceding comment relates only to Federally-owned lands. A similar solution for problems created by logging debris on privately-owned Indian lands, managed in trust by the Bureau of Indian Affairs, is not acceptable. In this latter respect, the draft report is deficient in not distinguishing between the two classes of ownerships, and by not recognizing that a single set of recommendations may not be appropriate for both types of ownerships. We suggest that under the existing trust arrangement between the Federal Government and the Indian people, it would be reasonable for the Comptroller General to recommend that the Federal Government pay for the excessive cost of removing such usable material that is submarginal in value. Such subsidized treatment appears particularly appropriate in view of the recognized benefits to the trustee (the Federal Government) deriving from the increased production and the improved environment. Such Government benefits are clearly stated on pages 45 and 46 of the draft report.

The following comments are directed to each recommendation concerning federally-owned land and excluding as discussed above Indian Trust land.

Recommendation The Federal agencies (Forest Service, Bureau of Land Management, and Bureau of Indian Affairs) should ". . . modify timber sale procedures to require the purchaser to remove felled wood that can be processed by existing facilities in the vicinity of the sale area."

The degree of utilization is an economic variable responsive to the law of supply and demand. If we are to interpret legislative mandates to require that we enforce the removal of all usable wood fiber under timber sale contract provisions, the U S Government would have to pay the cost of removing economically marginal logging residues. Such a subsidy to wood supply is a major change in policy and would require thorough study before implementation of the policy change.

Recommendation The Federal agencies should " .establish methods and procedures under which the various economic and environmental benefits to the Government from increased use of felled wood to be removed from the sale area, giving consideration to the feasibility of shipping wood outside the vicinity of the sale area "

Comment The first part of this recommendation is desirable, although achievement would not be easy. Results of some research in the economics of utilization are available. However, it is doubtful if any research has been done in the area of close utilization and related environmental benefits. We would like to note, however, that the BLM Oregon State Office is presently working with the Pacific Northwest Forest and Range Experiment Station on new alternatives for forest residues management. While in the formative stage, the study direction is toward incentives - promoted utilization.

The second part of the recommendation " ..shipping wood outside the vicinity of the sale area," necessarily incorporates the costs of the previous recommendation plus longer transportation. Again, this is subsidy to wood supply, and/or on-site benefits. This cost cannot be considered just as a dollar subsidy. The costs involved are scarce commodities, such as skilled labor, equipment, and energy. Subsidization of one scarce resource by expenditure of another scarce resource deserves careful policy consideration.

BLM timber sale policy and appraisal procedures have been based on the concept of transportation of merchantable logs from woods to the nearest utilization center at which there were facilities for converting logs to lumber and plywood. Chips are also considered an end product, and equipment for converting mill waste to chips is customary at western Oregon utilization centers. However, the machines used to chip mill waste are not capable of processing roundwood, i e., branches, long butts, tops. There has been some limited industrial use of special equipment for chipping logging residue in the woods, with truck transportation of the resulting chips to utilization center. However, we have no information at this time on the economic feasibility of this type of operation.

Recommendation The Federal agencies should " ascertain and set as a national goal the optimum level for the use of wood in sale areas that can be attained under the best timber processing technology available "

Comment The bulk of unused wood occurs after harvesting of overmature, decadent timber stands. As harvesting progresses into younger timber, utilization improves to the point where almost all of the tree is removed. Only tops and branches are left. Therefore, this recommendation seems more applicable to the old growth operations.

APPENDIX II

Perhaps this is the primary recommendation which should be implemented before we make a concerted effort toward maximum industrial use of logging residues. More is involved than the obvious considerations of economics and aesthetics. In some circumstances, it may be best to leave logging residues in place.

While heavy concentrations of logging debris may delay regeneration of the forest, logging slash may be the major seed source in some situations. Slash cover may also provide shade and conserve moisture and thus enable seedlings to survive on critical sites. On some soil types, logging residues may reduce erosion by breaking the impact of rainfall and by checking the flow of surface water. Nutrient cycling is another consideration, as logging residues decompose, organic material and minerals essential for plant growth are released and added to the soil mantle.

Neither the adverse nor the beneficial effects of logging residues in place have been objectively studied and quantified. It seems only logical that basic research in these areas should precede a major program aimed at reducing unused logging debris to minimum levels.

Recommendation The Federal agencies should " identify the areas where local processing facilities are inadequate to insure optimum use and should evaluate the relative needs for Federal action to improve the use of felled wood (logging residues) in such areas . " and, having done these things, the Federal agencies should " explore ways and means for providing Federal assistance in developing additional timber processing capabilities "

Comment These related recommendations suggest that we take a new direction and assume responsibilities not previously considered BLM obligations. The Forest Service, through the research and development programs conducted by its experiment stations and Forest Products Laboratory, has long been involved in improvement and expansion of markets for wood. However, BLM has interpreted its legal authorities as limiting its role to land management activities, and has functioned accordingly. Congressional authorization might be needed to enable BLM to participate in implementing these recommendations.

The following comments concern portions of the draft narrative preceding the recommendations

Pages 2 and 9.

[See GAO note]

- With funding for adequate protection, forest development and timber sale administration, the annual cut can be increased within two years to a sustained level of at least one billion board feet. Our immediate primary funding effort must be directed toward obtaining sufficient Federal funds to achieve this level of harvest cutting. Additional funds to subsidize the removal of usable, but submarginal logging slash material from logged areas would provide the basis for a total annual harvest removal in excess of the one billion board feet allowable cut, which consists of material classed as merchantable under existing timber sale contract provisions

[See GAO note.]

Page 34. The draft refers to the finding of a 1971 Forest Service research report that felled wood (logging residues) on Federal lands in the Douglas-fir subregion of Oregon and Washington was more than 50 percent greater than felled wood on cutover lands of private companies, on a per acre basis. The report cited is a Forest Service Research Note, PNW-163 of August 1971, authored by James O Howard of the Pacific Northwest Forest and Range Experiment Station.

In discussion of his report and supporting study with Mr. Howard, we learned that his study had sampled substantially more old-growth cutovers on Federal than on private lands. On the private lands, cutting areas were more frequently located in thrifty second growth stands where recovery of merchantable material was higher and volume of logging residues lower than in

GAO note Deleted comments related to matters presented in draft report which have been revised or omitted in the final report.

APPENDIX II

old growth timber His study also determined that as age of old growth timber increases, these stands produce greater gross volumes of logging residues and proportionately lesser volumes of usable residues.

Mr. Howard stated his belief that in comparing Federal and private timber stands of comparable age and condition, there would be a difference in utilization due solely to ownership considerations On private lands the cost of recovery of economically submarginal logs can be offset by benefits of less costly future fire hazard reduction and forest development operations. Such offsets between costs and benefits need not be considered by the purchaser of Federal timber under present contracting arrangements.

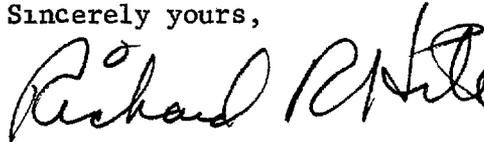
Pages 33 and 34. The quoted comments relative to maximizing the profits (or net benefits) for purchasers of timber sold by the Federal agencies fails to recognize that under strongly competitive bidding (such as occurs in the sales of most Indian timber in the three Pacific-coast states), substantially all of indicated "purchaser benefits" are converted into the prices bid for stumpage. Thus, under the "survival-type" of bidding that usually occurs, the Indian landowners (rather than the purchasers) realize the benefits from the "marginal log" concept. Such increased stumpage values are immediate (or very early) dollar benefits, as compared to the intangible and/or long-range benefits that result from reduction in logging debris

Page 35. In addition to the factors favoring increased utilization of felled materials on industrial forest lands, which are listed on page 35, the following items also contribute toward intensified utilization on such lands

1. Tax offsets, as well as possible other benefits that may be realized by the owner-utilizer of otherwise marginal and submarginal material
2. The benefits of improved public relations will offset in large part the excessive cost of removing submarginal material. For example, industrial forest land owners have benefitted tremendously from the news articles that accompanied public announcements of the 1971 Forest Service research report mentioned on page 34 of the draft report

We appreciate the opportunity to review this report in draft.

Sincerely yours,



Acting Director of Survey and Review

PRINCIPAL OFFICIALS
RESPONSIBLE FOR THE ADMINISTRATION OF
ACTIVITIES DISCUSSED IN THIS REPORT

	Tenure of office	
	From	To
<u>DEPARTMENT OF AGRICULTURE</u>		
SECRETARY OF AGRICULTURE		
Earl L Butz	Dec 1971	Present
Clifford M Hardin	Jan 1969	Nov 1971
Orville L Freeman	Jan 1961	Jan 1969
ASSISTANT SECRETARY, CONSERVATION, RESEARCH AND EDUCATION (note a)		
Robert W Long	Mar. 1973	Present
Thomas K Cowden	May 1969	Mar 1973
John A Baker	Aug 1962	Jan 1969
CHIEF, FOREST SERVICE		
John R. McGuire	Apr 1972	Present
Edward P Cliff	Mar 1962	Apr 1972
<u>DEPARTMENT OF THE INTERIOR</u>		
SECRETARY OF THE INTERIOR		
Rogers C B Morton	Jan. 1971	Present
Walter J Hickel	Jan 1969	Nov 1970
Stewart L. Udall	Jan 1961	Jan 1969
ASSISTANT SECRETARY, PUBLIC LANDS MANAGEMENT		
Jack O. Horton	Mar 1973	Present
Vacant	Jan 1973	Mar 1973
Harrison Loesch	Apr 1969	Jan 1973
Vacant	Jan 1969	Apr 1969
Harry R Anderson	July 1965	Jan 1969

	<u>Tenure of office</u>	
	<u>From</u>	<u>To</u>
<u>DEPARTMENT OF THE INTERIOR (continued)</u>		
ASSISTANT SECRETARY FOR INDIAN AFFAIRS (note b)		
Marvin Franklin	Feb 1973	Present
DEPUTY ASSISTANT SECRETARY FOR INDIAN AFFAIRS		
William L Rogers	June 1971	Present
DIRECTOR, BUREAU OF LAND MANAGE- MENT		
Burton W Silcock	July 1971	Present
Boyd Rasmussen	July 1966	June 1971
COMMISSIONER OF INDIAN AFFAIRS		
Vacant	Jan 1973	Present
Louis R Bruce	Aug 1969	Jan 1973
Robert L Bennett	Apr 1966	May 1969

^aTitle changed from Assistant Secretary, Rural Development and Conservation, in January 1973

^bThis position was established in February 1973, at which time it was given responsibility for Indian affairs

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