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REPORT TO THE CONGRESS

Additional Actions Needed To Minimize Adverse Environmental Impacts Of Timber Harvesting And Road Construction On Forest Land B-125053

Department of Agriculture
Department of the Interior

*BY THE COMPTROLLER GENERAL
OF THE UNITED STATES*

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MARCH 20, 1973



COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON DC 20548

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To the President of the Senate and the
Speaker of the House of Representatives

This is our report on the need for the Forest Service, Department of Agriculture, and the Bureau of Land Management, Department of the Interior, to take additional actions to minimize the adverse environmental impacts of timber harvesting and road construction on Federal forest land.

Our review was made pursuant to the Budget and Accounting Act, 1921 (31 U.S.C 53), and the Accounting and Auditing Act of 1950 (31 U.S.C 67).

Copies of this report are being sent to the Director, Office of Management and Budget, the Secretary of Agriculture, and the Secretary of the Interior

A handwritten signature in cursive script, reading "James B. Stacks".

Comptroller General
of the United States

C o n t e n t s

	<u>Page</u>
DIGEST	1
CHAPTER	
1 INTRODUCTION	5
Management and use of land	5
Scope of review	7
2 ADDITIONAL ACTIONS NEEDED TO HELP MINIMIZE DAMAGE TO FOREST RESOURCES	9
Project planning procedures	10
Advice of specialists often not obtained in project planning	11
BLM timber sale project	11
Forest Service timber sale project	11
Forest Service road construction project	15
BLM road construction project	19
Forest Service and BLM studies	19
Specialists' advice not followed and reasons not documented	24
BLM road construction project	24
Forest Service timber sale project	24
Forest Service studies	25
Efforts to improve multiple-use manage- ment procedures	26
Forest Service	27
Bureau of Land Management	28
Conclusions	30
Recommendations to the Secretaries of Agriculture and the Interior	31
Agencies' comments and our evaluation	31
APPENDIX	
I Letter dated September 12, 1972, from the Acting Chief, Forest Service, to the General Accounting Office	35

BEST DOCUMENT AVAILABLE

APPENDIX

Page

II	Letter dated October 10, 1972, from the Acting Director of Survey and Review, Department of the Interior, to the General Accounting Office	37
III	Principal officials of the Department of Agriculture and the Department of the Interior responsible for the administration of activities discussed in this report	41

ABBREVIATIONS

BLM	Bureau of Land Management
GAO	General Accounting Office

D I G E S T

WHY THE REVIEW WAS MADE

Harvesting timber and constructing roads are activities essential to managing forest lands and providing significant benefits to the public

Two Federal agencies manage about 660 million acres of federally owned land, including about 114 million acres of commercial timberland. They are the Forest Service, Department of Agriculture, and the Bureau of Land Management (BLM), Department of the Interior

When timber is harvested and roads are constructed, fish, wildlife, watersheds, and remaining timber are affected. The effects, if not controlled, can be serious: soil erosion, landslides, damage to fish and wildlife habitat, pollution of water supply, and marring of natural beauty

Many Government officials, Members of Congress, and private citizens are concerned about such adverse effects on land managed by the Forest Service and BLM

Federal laws provide that these agencies manage their land for a sustained high-level output of forest resources to meet the demands of the public without impairing land productivity

Both agencies employ resource specialists to help manage the land in accordance with these laws, both are required to consider environmental values in making land management decisions

The General Accounting Office (GAO) made this review to determine whether the policies, procedures, and practices followed by the Forest Service and BLM in planning timber sale and road construction activities were adequate to minimize the adverse impact on forest resources

FINDINGS AND CONCLUSIONS

Procedures and practices followed by both agencies in planning timber sale and road construction projects did not insure that the expertise of resource specialists was obtained and used to the extent practicable to help minimize avoidable damage to forest resources (See p. 9.)

Timber management and engineering personnel, who do the detailed planning of timber sale and road construction projects, usually decided whether the expertise of resource specialists was needed (See p. 10.)

In many instances in which timber-harvesting and road construction

projects caused serious damage to forest resources and the environment, project planners either had not obtained or had not followed the advice of resource specialists

- 1 A Forest Service road project under construction at the time of GAO's review was located in an area with steep slopes, highly erodible soil, and numerous fish streams, according to the project planning documents. Many earth slides occurred in the area as the result of the project. One slide contained about 100,000 cubic yards of earth and caused sedimentation in the stream system

A State fishery biologist was concerned about the effects of the increased silt and sediment on the streams in the area. Even after the slide material is removed, visible effects of the slide will remain

According to Forest Service officials, assistance on this project from specialists in soil, watershed, fish, wildlife, and recreation was not requested or obtained in planning the project. The project file did not explain why such assistance was not requested (See p. 15)

- 2 A BLM road was located on a very steep side slope across areas with evidence of previous slides and soil movement. A soil specialist inspected the proposed road location before planning was completed and recommended that the road not be located as proposed because of the slide potential

The road, however, was con-

structed as planned and about 500 to 600 feet of the roadbed then slid down the slope. A large part of the material went into a fish-bearing creek, scouring the creek bottom and depositing sediment. Reasons for not following the specialist's advice were not documented in the project files (See p. 19.)

Forest Service and BLM personnel noted similar instances in studies made in various field locations. (See pp 19 and 25)

Every timber-harvesting and road construction project causes some damage to forest resources. Some Forest Service personnel are concerned about the frequency of serious damage, and others are concerned that damage can be a slow process of attrition that eventually causes serious damage.

Both agencies have reported that greater participation of resource specialists could result in a reduction of such damage (See p 9)

Both agencies have taken actions which should improve their management, including better protection of forest resources and the environment

In 1971 the Forest Service issued guidelines for its employees to use in developing and evaluating land management decisions affecting all forest resources. In April 1972 BLM headquarters officials issued, and requested BLM field managers to test, guidelines for making environmental analyses of the potential impact of their land management decisions. (See pp 27 and 28)

Neither agency, however, has

established national requirements that project planners obtain and use expertise of resource specialists in the detailed planning of each project or, when not obtained or used, document why such expertise was not considered necessary, was not available, or was not used

Additional actions are required to insure that the needed expertise is obtained and used early in planning individual projects (See p 30)

Field employees of the two agencies stated that this assistance would be desirable but that their agencies lacked the necessary funds to obtain the expertise

Procedures requiring that project planners document instances in which needed help was not available would assist the agencies in determining their manpower needs. This information would indicate those locations where it may be desirable to explore the availability of appropriate specialists from States or other Federal agencies (See p 30)

Documentation is necessary to provide a basis for supervisory review and for determining whether the adverse effects from timber-harvesting and road construction projects were attributable to lack of participation by resource specialists or failure to follow the advice of such specialists

RECOMMENDATIONS

The Forest Service and BLM should

- Require project planners to (1) obtain and use the expertise of appropriate resource specialists in watershed, recreation, fish,

wildlife, range, and timber in planning and designing each timber sale and road construction project and (2) document for review by supervisory officials, when such expertise is not obtained or used, why it was not considered necessary, was not available, or was not used

- Require that the specialists' views and recommendations be made part of the project planning documents for review by supervisory officials

- Identify and analyze where and why needed assistance from specialists could not be obtained and explore ways to provide such assistance (See p 31)

AGENCY ACTIONS AND UNRESOLVED ISSUES

The Department of Agriculture generally agreed with GAO's conclusions and stated that the Forest Service had made, or was making, several changes in national instructions to implement GAO's recommendations (See p 31)

The Department of the Interior stated that GAO's report was timely in emphasizing the need for obtaining adequate participation by resource specialists in the management of federal forest lands. The Department also stated that BLM has installed procedures which meet most of GAO's recommendations but that implementation of those procedures at the field level was not totally accomplished

GAO believes that additional actions are needed to strengthen BLM's new procedures and to implement portions of GAO's recommendation on the documentation of the use or nonuse of resource specialists. (See p. 32)

MATTERS FOR CONSIDERATION
BY THE CONGRESS

This report informs the Congress of actions that the Forest Service and

BLM should take to insure that the adverse environmental impacts of timber harvesting and road construction on forest resources are minimized.

CHAPTER 1

INTRODUCTION

Timber harvesting and road construction activities of the Forest Service, Department of Agriculture, and the Bureau of Land Management (BLM), Department of the Interior, are essential elements in managing the agencies' forest land and provide considerable benefits to the general public. The timber is used to help meet the Nation's housing needs, the roads provide access to the timber and to recreation areas and activities.

If not properly planned and carried out, timber harvesting and road construction can cause soil erosion and landslides which diminish the soil's productive capacity and damage the water quality. They also can (1) damage the wildlife habitat by removing food supply and protective cover and disturbing migration routes, (2) damage the fish habitat by removing shade trees or clogging streams with soil and logging debris, and (3) mar the landscape when all timber on tracts of land is cut down (clear cut) in patterns not compatible with the landscape.

Many Government officials (including Forest Service and BLM officials), Members of Congress, and private citizens have expressed concern about such adverse effects. In many instances, this concern has resulted in the agencies' planned timber-harvesting and road construction projects being contested through court actions and other means.

MANAGEMENT AND USE OF LAND

The Forest Service and BLM manage about 660 million acres of federally owned land. BLM manages about three-fourths of this land, the Forest Service manages the rest. The land includes about 114 million acres of commercial timberland, or about 20 percent of the Nation's commercial timberland and about 40 percent of the Nation's commercial timber supply. About 80 percent of the commercial timberland is managed by the Forest Service and 20 percent by BLM.

Federal laws¹ generally provide that the agencies manage their land for a sustained, high-level output of the forest resources--recreation, range, timber, watershed, wildlife, and fish--to meet the demands of the public without impairing the productivity of the land. Pursuant to the National Environmental Policy Act of 1969 (42 U.S.C. 4321), all agencies are to consider environmental values in making land management decisions.

The use of the agencies' forest resources has been heavy and could increase significantly.

- In recent years timber harvests on this land have averaged 12.9 billion board feet a year. BLM expects to maintain its present harvesting level over the next several years, but the Forest Service has indicated that, by the year 2000, it could increase its harvest by 44 percent, provided that sufficient funds and manpower are available on a timely basis for more intensive forestry programs. This effort responds to a 1970 Presidential directive to formulate plans for improving the level and quality of forest land management to permit increased harvest of softwood timber consistent with sustained-yield, environmental quality, and multiple-use objectives
- The 1971 timber harvests involved about 1.3 million acres of Forest Service and BLM lands, including about 420,000 acres which were clear cut.
- In 1971 about 9,800 miles of roads were constructed or reconstructed on Forest Service and BLM land to provide access to forest resources. The Forest Service and BLM estimate that an additional 115,000 miles of roads will be constructed or reconstructed on their land during the next 10 years.

¹The Multiple Use-Sustained Yield Act of 1960 (16 U.S.C. 528), governs the management of Forest Service lands. The Act of August 28, 1937 (43 U.S.C. 1181a), and the Act of July 31, 1947 (30 U.S.C. 601), govern the management of BLM land. In managing its land, BLM also follows multiple-use and sustained-yield objectives.

--In 1971 recreational use of Forest Service and BLM land totaled about 178 million and 42.5 million visitor-days, respectively. The Forest Service predicts that recreational use of its lands will increase by 80 percent by 1982, BLM predicts a 75-percent increase by 1977.

To provide for sustained yield and multiple use of all forest resources and for environmental protection, the Forest Service and BLM employ resource specialists, including specialists for soil, water, fish, wildlife, range, recreation, timber, road construction, and landscape architecture.

The agencies use these specialists to help (1) administer their programs for managing each of the forest resources, (2) plan the broad, long-range uses to be made of land areas (e g., determining whether an area is to be used for timber production, recreation, or other purposes), (3) study areas for possible inclusion in the National Wilderness Preservation System, and (4) plan and design specific projects, including projects for the construction of recreation facilities, improvement of fish and wildlife habitat, harvest of timber, and construction of roads.

SCOPE OF REVIEW

We evaluated the policies, procedures, and practices of the Forest Service and BLM for planning timber sale and road construction activities to determine if they were adequate to minimize the adverse impact on forest resources. We reviewed pertinent guidelines and procedures, examined records on individual timber sale and road construction projects, and discussed project planning procedures with agency officials and employees.

We made our review at 11 national forests in the Eastern, Southern, California, and Pacific Northwest Regions of the Forest Service, at the Forest Service's regional office in its Pacific Northwest Region, at the BLM State office and selected district offices in Oregon, and at the agencies' headquarters offices in Washington, D C We also talked with Forest Service regional office officials in the Northern, Intermountain, and Rocky Mountain Regions

We also reviewed and made followup inquiries on Forest Service studies dealing with the impacts of timber-harvesting and road construction activities. These studies covered the Monongahela National Forest in West Virginia, four national forests in Wyoming, and nine national forests in Montana and Idaho.

CHAPTER 2

ADDITIONAL ACTIONS NEEDED TO HELP

MINIMIZE DAMAGE TO FOREST RESOURCES

Forest Service and BLM procedures and practices did not insure that the expertise of resource specialists was obtained and used to the extent practicable during the planning of timber sale and road construction projects to minimize avoidable damage to forest resources.

Every timber-harvesting and road construction project causes some damage to forest resources. Some Forest Service personnel are concerned about the frequency of serious damage, others are concerned that damage can be a slow process of attrition that eventually causes serious damage.

Our review and several studies by Forest Service and BLM personnel in various field locations showed that, in many instances, timber management or engineering personnel (project planners) either had not obtained or had not followed the advice of resource specialists in planning individual projects. Reports on the agencies' studies stated that greater participation of resource specialists could have reduced such damage.

During the past few years, the Forest Service and BLM have developed an increased awareness of the need to better protect forest resources and environmental values in land management, they have made considerable efforts to improve their multiple-use land management. At the time of our fieldwork, both agencies had issued new guidelines to their field offices for improving the protection of forest resources and environmental values.

However, we believe that national requirements are needed to insure that expertise of resource specialists is obtained and used as early as possible in formulating the detailed plans for each timber-harvesting and road construction project.

PROJECT PLANNING PROCEDURES

Proper protection of forest resources and environmental values in planning timber-harvesting and road construction projects requires (1) intensive data on the soil, water, fish, wildlife, and recreation resources and other characteristics of the project areas, (2) interpretations of such data in terms of potential damage from timber harvesting and road construction, and (3) determinations of how and where the timber should be harvested and the roads should be constructed

The agencies use resource specialists to obtain inventory data as part of their long-range planning before identifying proposed projects. The agencies recognize that the preproject data generally is not intensive enough for detailed planning of specific projects and are improving their data bases.

Timber management and engineering personnel usually identified proposed projects, formulated detailed plans for the projects, and decided whether the expertise of other specialists was needed to obtain more data, interpret the data, and determine where and how to harvest the timber and to construct roads.

Various line officials and available resource specialists other than timber specialists and engineers reviewed and approved completed project plans. In most cases the reviewers did not inspect the site of the planned project, they relied heavily on the information in the project planning files.

Neither agency had established national requirements that project planners obtain and use expertise of resource specialists in the detailed planning of each project or document why it was not obtained or used.

ADVICE OF SPECIALISTS OFTEN NOT
OBTAINED IN PROJECT PLANNING

Timber sale and road construction planners often did not obtain advice from appropriate resource specialists during project planning. In many instances such projects caused serious damage to forest resources and environmental values. Forest Service and BLM personnel have stated that greater use of the expertise of resource specialists could minimize such damage.

BLM timber sale project

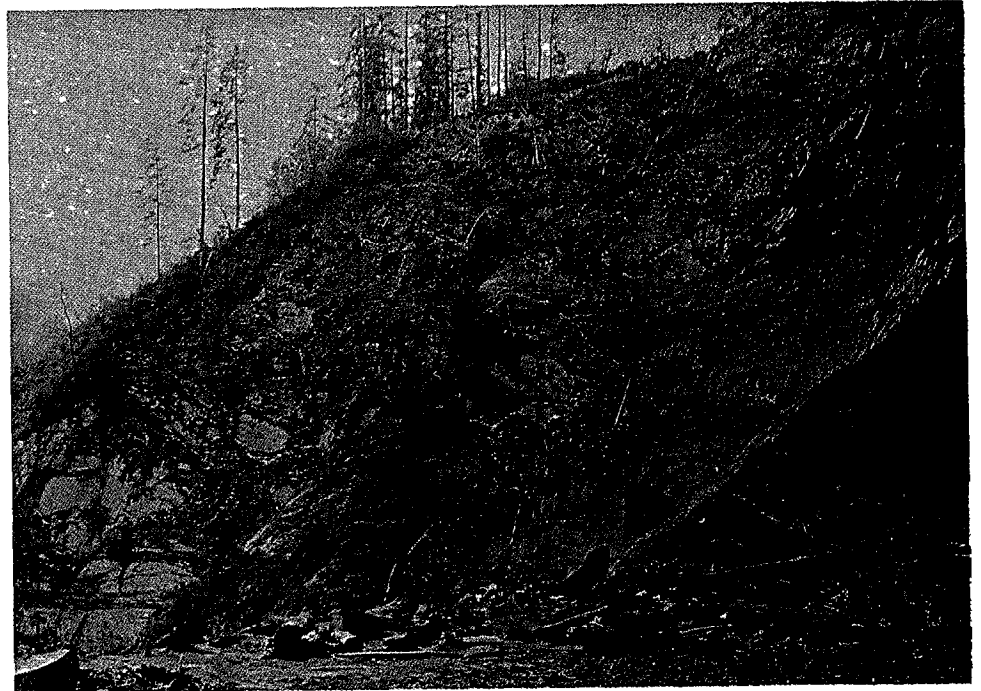
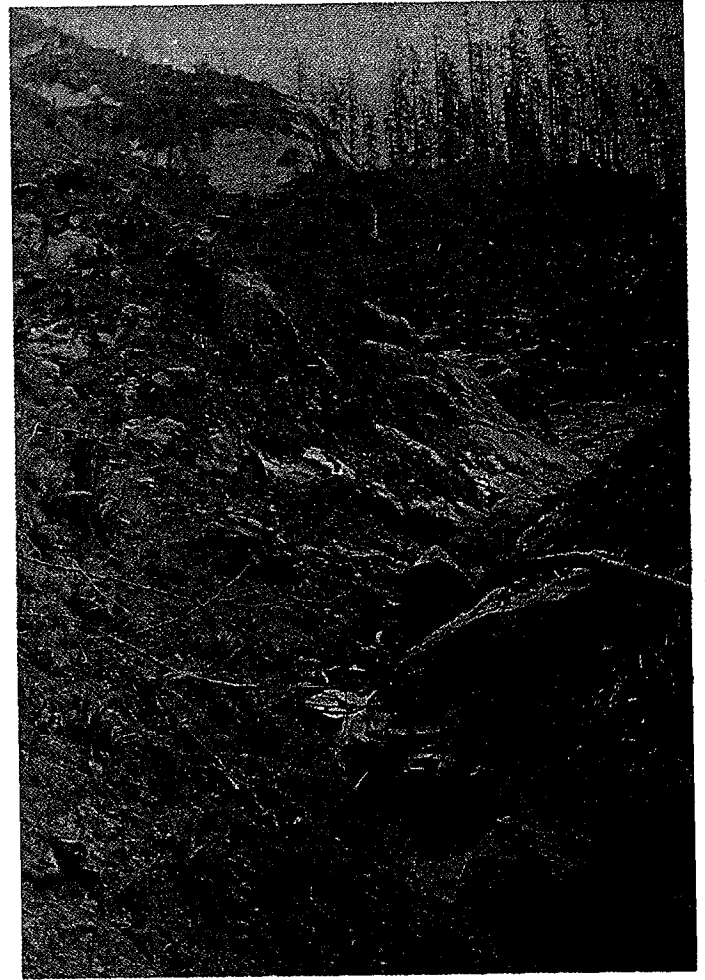
A part of a BLM timber sale project was located on steep, rocky slopes covered with a thin mantle of soil. According to BLM officials, accelerated soil erosion occurred on this part of the project area after the timber was harvested. (See pictures 1 and 2.) BLM officials said that the accelerated erosion resulted in increased sedimentation of nearby creeks which flow into a fish-bearing river. They also said that soil losses greatly reduced the prospects for successfully establishing another timber stand in that area.

Another BLM official said that this project was planned without assistance from specialists in soil, fish, wildlife, and geology. The project files did not contain any documentation indicating whether assistance from other resource specialists had been requested or, if not requested, why such assistance was not considered necessary.

Forest Service timber sale project

A Forest Service timber sale project with two clear-cut tracts of land, one of 50 acres and the other of 78 acres, was located in an area which project planning documents stated had steep side slopes and thin soils overlaying massive rock formations. The area was laced with numerous

1 Portion of BLM timber sale project



2 Portion of BLM timber sale project

gullies which drained into an anadromous fish¹ stream located about a half mile from one of the clear-cut tracts

A Forest Service official said that severe soil erosion occurred on both tracts of the project area after timber was harvested and that the erosion caused increased stream siltation and made successful regeneration of the harvested area almost impossible. (See pictures 3 and 4.)

The project files did not indicate that the planners obtained assistance from specialists in soil, fish, or wildlife or that such assistance was requested or why such assistance was not considered necessary.

Forest Service road construction project

A Forest Service road construction project, which was under construction at the time of our fieldwork, will include a 12-mile major access road and about 6 miles of timber sale roads. When completed, the project is expected to provide access to more than 6,000 acres. A Forest Service project planning document showed that the roads would be located in an area with steep slopes and highly erodible soil. It also showed that the area was laced with numerous streams and creeks and that 25 miles of creeks and streams within the immediate project area were used by anadromous fish.

Many earth slides had occurred in the area as the result of the project. A Forest Service official said that one slide contained about 100,000 cubic yards of earth and caused sedimentation in the stream system. A State fishery biologist, after seeing the slide areas, was concerned about the effects of the increased silt and sediment on the creeks and streams in the area. The slide material also pushed over numerous trees. Even after the slide material is removed, the visible effects of the slide will remain.

According to Forest Service officials, onsite assistance from specialists in soil, watershed, fish, wildlife, or

¹Anadromous fish are fish, such as the salmon, which go from the sea up rivers or streams to spawn.



3 Portion of Forest Service timber sale project



4 Portion of Forest Service timber sale project

(Photographs furnished by the Forest Service)

recreation was not requested or obtained in planning the project. The project file did not explain why such assistance was not requested.

BLM road construction project

BLM constructed a road which required excavating the support for a large amount of earth located on a sharp ridge above the road. Subsequently, about 50,000 cubic yards of earth (covering more than 200,000 square feet) collapsed near the top of the ridge and covered nearly 500 feet of the road (See picture 5.) A large part of the slide was deposited near the headwaters of a fish-bearing stream

A BLM field official told us that the slide caused a significant increase in stream siltation which damaged the water quality. The debris was removed, but the scar remained visible from the road. (See picture 6.)

Another BLM field official said that this road was planned without assistance from soil, fish, and wildlife specialists. The project files did not show whether assistance from specialists was requested or why such assistance was not considered necessary.

Forest Service and BLM studies

In recent years Forest Service and BLM personnel made several studies of timber-harvesting and road construction activities. The studies were usually made at the request of agency management officials in the field and varied in scope from studies of individual timber sales to studies of the overall timber management program of an entire region. The reports on the studies discussed numerous instances in which improperly located and designed timber sale and road construction projects caused damage to forest resources. The reports stated that greater participation of appropriate resource specialists could have resulted in reducing such damage.

--A Forest Service study report on a 420-acre watershed in California stated that 43 percent of the watershed had been clear cut during a 7-year period and that surface runoff and soil erosion from a 1970 rainstorm caused extensive damage to a logging road, carried



5 Earth slide on BLM road construction project



6 Slide area after debris was removed

(Photographs furnished by BLM)

logs and logging debris into a stream, and damaged private property. The report stated that specialized knowledge--including skills in forestry, construction and logging engineering, geology, soil, hydrology, and natural landscaping--would have been necessary to reduce the damage.

- A Forest Service study report on a timber sale project in Georgia stated that 3 years after the timber was harvested landslides occurred on a portion of a 40-acre clear-cut tract adjacent to a fish-bearing stream. The report stated that over 330 tons of slide material entered the stream, causing about 650 million gallons of muddy water to be emptied into the river system during a 10-day period. In response to the report, a top official of the Forest Service's Southern Region stated that the expertise of soil and watershed specialists should be used for similar areas in deciding whether to harvest timber and in developing logging plans.
- A 1971 BLM report on a study of a timber access road construction project in Oregon stated that the project had caused erosion, mass soil movements, and serious siltation of fish-bearing streams and made specific recommendations for minimizing such damage in future projects. The report also stated that such damage would occur in other projects unless greater effort was made to integrate available skills in project planning and design.

SPECIALISTS' ADVICE NOT FOLLOWED
AND REASONS NOT DOCUMENTED

Although specialists other than timber management and engineering personnel sometimes participated in project planning, their suggestions or recommendations to minimize resource damage were not always incorporated into the project plans, and in some such instances, the projects caused serious damage to forest resources. Such cases were noted in our review and in some of the studies by Forest Service personnel. Project planners, however, were not required to document in the project files the reasons for not following the specialists' advice.

BLM road construction project

A BLM road construction project was located on a very steep side slope across areas with evidence of previous slides and soil movement. A soil specialist who inspected the proposed road location before planning was completed stated that the proposed road probably would have slides similar to those experienced on another road project in the area and recommended that the road not be located as proposed. The road, however, was constructed as proposed.

After construction, about 500 to 600 feet of the roadbed slid down the slope. A large part of the material went into a fish-bearing creek. According to BLM officials, the slide adversely affected the fish resources by scouring the creek bottom and depositing sediment as far as a mile downstream. The project files did not state the reasons for not following the specialist's advice.

Forest Service timber sale project

A Forest Service timber sale project underway at the time of our fieldwork was located in an area which, according to a Forest Service official, was subject to slides because of steep slopes and unstable, highly erodible soil. The plan called for clear cutting 304 acres in six separate tracts. Because three of the tracts were adjacent to an anadromous fish stream, narrow buffer strips of trees were to be left between the stream and the clear cuts. According to the plan, the loggers were to drag the logs downhill, a practice which generally results in considerable soil disturbance.

A Forest Service soil specialist stated that the planned harvesting and logging methods would cause soil and logging debris to slide down the steep slopes and into the stream. He recommended that the logging method for the three tracts near the stream, where timber cutting had not yet started, be modified for lifting rather than dragging the logs and thus minimizing potential damage. His recommendation was not incorporated in the plan, and the project files did not explain why.

Forest Service studies

In a 1970 report on timber management in the Forest Service's Northern Region, a Forest Service study team stated that road planners did not sufficiently incorporate the advice of soil and water specialists in road construction plans

For example, a specialist suggested avoiding road construction along a steep mountain face, but a decision was made to construct 2 to 3 miles of road through this steep area. The report stated that, as a result, there is a possibility of mass road failure. According to the report, reasons for not following the specialist's advice were not adequately documented.

As another example, a road was constructed through steep terrain where numerous earth slides later occurred. According to the report, the road planners had not fully considered the advice of soil and water specialists. The report stated that the specialists' advice should have been followed more closely but did not say why it was not

In a 1971 report on forest management in four national forests in Wyoming, a Forest Service study team cited several instances in which road construction projects had caused soil erosion and landslides and stated that the knowledge necessary to prevent mistakes in road location and construction was available but not used. The report did not state why the available knowledge had not been used.

The 1971 Forest Service report stated that

* * * mistakes in road location and construction are not isolated instances and they are cause for concern for several reasons. First, the

knowledge necessary to prevent them was available but not used. Second, they cannot be dismissed on the grounds that "we are no longer doing it this way." Some of the cited roads were built during the past 5 years. There is still not enough quality control of road construction for watershed protection.

A 1970 Forest Service report on a study of management practices on a national forest in Montana stated that

Deterioration of streams, watersheds, and scenery can be a slow process of attrition that eventually adds up to serious damage. In this sense, the scattered examples of road-caused damage are reason for concern. Moreover, some of the impacts are extremely long lasting, for example, roads that seriously disrupt scenic quality or stream channels. A stream that has been scoured by sediment--even though not seriously gouged--takes decades to heal. From this point of view, we are concerned. Though the damage to date has not been great, we believe it urgent to develop a higher level of quality control in roadbuilding.

* * * * *

* * * The skills of the engineer, soil scientist, hydrologist, geologist, and landscape architect must be combined and utilized to a degree not yet achieved.

EFFORTS TO IMPROVE MULTIPLE-USE MANAGEMENT PROCEDURES

The Forest Service and BLM have taken certain actions which should result in improved multiple-use management. Although such actions should result in better protection of forest resources and environmental values during timber-harvesting and road construction activities, additional use of needed expertise early in the onsite planning of each project is warranted.

Forest Service

Since 1969 the Forest Service has been studying approaches for gathering more intensive data on forest resources on national forest lands and for using such data in management planning. In June 1971 the Forest Service initiated a 10-year environmental program intended to provide a Service-wide multifunctional planning and evaluation process for identifying the best balance between Forest Service programs and activities. The program provides that, for planning purposes, areas no smaller than an entire national forest be used.

In November 1971 the Forest Service issued new guidelines for multiple-use management planning which merged the requirements of the National Environmental Policy Act with the existing Forest Service policy for multiple-use management. The new guidelines provide a broad framework for developing and evaluating objectives and alternatives for using resources in forest-planning units. These planning units are to be large enough to encompass most of the significant relationships among resources within a watershed or a series of watersheds.

In March 1972 Forest Service headquarters officials told us that the November 1971 guidelines were intended to provide, among other things, improved protection of forest resources during timber harvesting and road construction. Subsequently, we asked Forest Service officials in the Pacific Northwest Region what effect the November 1971 guidelines were having on their project planning. They said that the guidelines had not yet been implemented in the region.

The November 1971 guidelines do not clearly require project planners to seek and use needed assistance from resource specialists. Forest Service field employees told us that it would be desirable to have such assistance early in the planning and design stages of individual projects but that the Forest Service did not have sufficient funds to obtain it. Forest Service procedures do not require project planners to document, for future use in determining manpower needs, instances in which specialists' assistance is needed but is not available.

The importance of clearly stated requirements for obtaining and using the assistance of appropriate resource specialists in project planning was stated in the 1970 Forest Service report (see p 25) on timber management in its Northern Region.

The use of "specialists" was more often than not overlooked in gathering basic information. A big problem in this area is, how does the man on the ground know when he needs help? When should he be looking for advice, and how does he go about getting it? Obviously, every specialist is not going to look at every timber sale. Somehow, the need has to be determined and adequate assistance obtained at the proper time, and the attitude barrier of not asking for help overcome (Under-scoring supplied.)

Problems similar to these also existed in other Forest Service regions. For example, Pacific Northwest Region officials told us that project planners often were not able to recognize when they needed specialists' help.

Bureau of Land Management

In April 1972 BLM issued, and requested its field managers to test, guidelines for making environmental analyses of the potential impact of their land management actions. In June 1972, after we completed our fieldwork, BLM issued additional guidelines which state that an environmental analysis should be prepared during the early planning for each timber sale and related road construction project. These guidelines are intended to help minimize adverse impacts from timber-harvesting and road construction activities on all forest resources. According to a BLM official, more definite guidelines were to be issued after completion of field testing late in 1972.

The BLM guidelines do not require project planners to seek and use needed assistance from appropriate resource specialists early in the planning of each project. Similar to comments made by Forest Service field officials, BLM field officials told us that such assistance on each project would be desirable but that BLM did not have sufficient funds to obtain it. Like the Forest Service, BLM procedures do not

require project planners to document, for future use in determining manpower needs, instances in which needed assistance is not available.

During our fieldwork, BLM officials in two of the five BLM districts in Western Oregon began requiring that certain resource specialists, other than timber management and engineering personnel, participate in the planning and design of each timber sale and road construction project. One district requires that a soil scientist and a wildlife biologist visit each proposed project site before the plan is completed. The other requires that a soil scientist participate in the early planning stage of each project. A soil scientist at one of the districts told us that his suggestions had modified plans for each project in which he participated.

CONCLUSIONS

The Forest Service's and BLM's increased awareness of the need to better protect forest resources and environmental values in their timber-harvesting and road construction programs and certain agency actions should reduce damage to forest resources.

Additional actions are required, however, to insure that the expertise of needed resource specialists is obtained and used as early as possible in the planning of each timber-harvesting and road construction project to point out the potential damage which each project might cause and to recommend protective measures to minimize such damage

When such expertise is not obtained or used, the project records should state why it was not considered necessary, was not available, or was not used in formulating final project plans. The views and recommendations of the specialists should also be documented in the project records.

Such documentation should provide a basis for supervisory review and for determining whether any subsequent adverse effects from timber-harvesting and road construction projects were attributable to the lack of participation by resource specialists or failure to follow the specialists' advice.

Identification of locations where expertise is needed but not available within the agencies would assist the agencies in determining their manpower needs. Such information would indicate those locations where it may be desirable to use appropriate specialists from State agencies or other Federal agencies (such as the Soil Conservation Service and the Fish and Wildlife Service). For example, the Forest Service had obtained assistance from State-employed wildlife biologists to minimize the impact on wildlife resources in a national forest in West Virginia.

RECOMMENDATIONS TO THE SECRETARIES
OF AGRICULTURE AND THE INTERIOR

We recommend that the Forest Service and BLM

- Require project planners to (1) obtain and use the expertise of appropriate resource specialists in watershed, recreation, fish, wildlife, range, and timber in planning and designing each timber sale and road construction project and (2) document for review by supervisory officials, when such expertise is not obtain or used, why it was not considered necessary, was not available, or was not used.
- Require that the specialists' views and recommendations be made part of the project planning documents for review by supervisory officials.
- Identify and analyze where and why needed assistance from specialists could not be obtained and explore ways to provide such assistance.

AGENCIES' COMMENTS AND OUR EVALUATION

The Department of Agriculture advised us (see app. I) that it generally agreed with our conclusions and that the Forest Service had made, or was making, several changes in its national instructions to implement our recommendations.

The Department stated that it thought that the key to the problem was to identify the kinds and levels of skills needed in particular situations and then see that the skills were applied in the planning and execution of individual projects. The Department stated also that a major role of its specialists was to provide technical information and to train others to use such information and to recognize critical situations which required the direct involvement of specialists.

The Forest Service will have to decide whether additional specialists are necessary. Our concern is that appropriate expertise be used where needed. Implementation of our recommendations would provide the Forest Service with a basis for identifying its resource specialist needs in the timber-harvesting and road construction programs and for determining whether these needs are being filled.

The Department also stated that two of the nine Forest Service regional offices had manual instructions which provided for the use of available technical specialists in multiple-use planning. Although our review of individual projects did not cover projects in these two regions, we noted that the manual instructions are not clear as to whether the use of specialists is required on each timber sale or road construction project. The instructions do not require documentation of the use or nonuse of appropriate specialists or documentation of reasons why such advice, if obtained, was not followed.

The Department stated that the Forest Service's national instructions had been or were being modified to require engineering representatives to call on appropriate specialists, as needed, during the planning and construction of roads. The Department stated also that the national instructions covering timber sale area planning and timber sale layout were being revised to require that

- needed skills be identified, documented, and made available to district rangers and

- documentation be made of the use of specialists, or others with special skills, the failure to use appropriate specialists, or the failure to follow the specialists' advice.

Implementation of the above actions should result in better use of resource specialists to help minimize the adverse impacts of timber-harvesting and road construction projects.

The Department of the Interior advised us (see app. II) that our report was timely in emphasizing the need for obtaining adequate participation by resource specialists in the management of Federal forest lands. The Department advised us that BLM had installed procedures which meet most of our recommendations but that implementation of these procedures at the field level was not totally accomplished.

These BLM procedures generally provide that resource specialists should be used in the detailed planning of timber sale and road construction projects. Such provisions can be interpreted as being optional rather than mandatory. The

procedures do not provide for documenting why assistance from appropriate resource specialists was not considered necessary, why it was not available, or why the advice was rejected.

The Department stated that it may be more important for the decisionmaker to document his decision than to explain rejection of any one bit of advice. We believe that proper documentation of decisions would require explanations for rejection of advice for avoiding significant damage of forest resources. As previously indicated, the Department of Agriculture agreed with our recommendations concerning documentation and stated:

* * * we suggest that the value of adequate documentation is not fully explained. We think the real value is that it permits evaluation and modification of the decisionmaking process as problems are uncovered. It permits us, in other words, to learn from our mistakes. If we are to make the proper procedural corrections, we must know if problems have resulted from inadequate or poor advice or from failure to follow expert advice.

The Department of the Interior agreed with our recommendation for identifying and analyzing where and why needed assistance from appropriate specialists could not be obtained and for exploring ways to overcome this problem. The Department stated that partial identification and analysis of needed manpower had been done and budget requests made. It stated that shortage of specialists was not the only problem and that an analysis of overall manpower needs would be made. We believe that proper documentation of instances where needed expertise is not available would assist the Department in assessing its needs.

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
WASHINGTON D C 20250

NRFFLY & ELEV IC
1420

September 12, 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 the need for additional actions to minimize adverse impacts (B-125053) with interest and concern. While we are in general agreement with the conclusions reached, we believe there are several areas in which the report might be improved.

We also would like to see the report emphasis placed on the application of the appropriate skills or knowledge, rather than on the use of specialists, per se. For one thing the report as written seems to suggest the need for a great many more specialists. We think this is neither wise nor necessary. The key problem it seems to us, is to identify the kinds and levels of skills needed in particular situations and then to see that these skills are applied in planning and execution. A major role of our specialists is to assist in this process by providing inventory data such as soil stability information and by training other resource people to utilize this information and to recognize critical situations which require the direct involvement of the specialists.

We do disagree with the inspection contention that the Forest Service does not require the use of appropriate specialists. For example, Region 4 Supplement 13, 2140.3, dated May 1964, states "The skills of available Forest and Regional Office technical specialists will be sought and used as needed." And Region 3 Supplement 13, 2140.3, dated August 1970, states "Skills of technical specialists will be used in making evaluations and reaching conclusions during on-the-ground surveys. The District Ranger will be responsible for using the technical findings as appropriate in the multiple use survey report." Forest Service Regions' supplements generally contain a statement similar to Region 8 which says "The survey (referring to multiple use survey) will be started even when preliminary and indirect advice indicates that a proposal will be made."



APPENDIX I

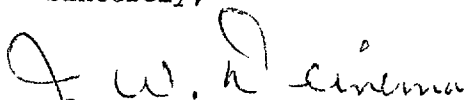
We have no quarrel with your recommendation concerning documentation, but we suggest that the value of adequate documentation is not fully explained. We think the real value is that it permits evaluation and modification of the decisionmaking process as problems are uncovered. It permits us, in other words, to learn from our mistakes. If we are to make the proper procedural corrections, we must know if problems have resulted from inadequate or poor advice or from failure to follow expert advice. In this connection we would point out that problems will occur even when the most expert advice is obtained and used. Soil failures still occur on major highways even though sophisticated soil investigations are made.

Despite our suggestions for changes in the report, we have made or are making several changes in National instructions along the lines of your recommendations.

The Forest Service Engineering Handbook (FSH 7709 11) now requires that engineering representatives assigned to purchaser-constructed roads, call on appropriate specialists as needed. Also required in the final construction report is a synopsis of the geologists report and a comparison between the geologic and hydrologic features as predicted and as found. Comparable instructions are to be included in a preconstruction handbook now in preparation.

Manual instructions covering sale area planning and sale layout (2431.2) are being revised to require that needed skills be identified and documented in the Environmental Analysis Report and that Forest Supervisors make such identified skills available to the District Ranger. Concurrently, instructions covering the timber sale report are being revised to require the documentation of the use of specialists or others with special skills, explanation for failure to use appropriate specialists or to follow their advice, etc.

Sincerely,


J. W. DEINEMA
Acting Chief



United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D C 20240

OCT 10 1972

Mr. Max Hirschhorn
Deputy Director, Resources and
Economic Development Division
General Accounting Office
Washington, D C. 20548

Dear Mr. Hirschhorn

The Department of the Interior has reviewed with interest the GAO draft report "Additional Actions Needed to Minimize Adverse Impact of Timber Harvesting and Road Construction on Federal Forest Lands, Department of the Interior, Department of Agriculture (B-125053) Our response indicates that the Bureau of Land Management procedures have been installed which meet most of the recommendations of your report. However, we readily grant that implementation of these procedures at the field level is not totally accomplished. Efforts toward this are occurring and will continue concentrating on the need for more resource specialists, more people skilled in the social and environmental design arts and increased funding to conduct the thorough interdisciplinary analysis necessary.

Specific comments on the content of the draft report follow

FINDINGS AND CONCLUSIONS

"The procedures followed by the Forest Service and BLM during the planning of timber sale and road construction projects do not ensure that needed expertise of various resource specialists is used to the fullest practical extent to help minimize damages to forest resources."

Comment BLM Manual 1601 through 1608 established procedures for land use planning. BLM Manual 1792 established procedures for preparation of an Environmental Impact Analysis and an Environmental Statement. These manuals require the utilization of various resource specialists. More specifically to the topic of timber sales and road construction is BLM Instruction Memo 72-135, issued March 1972. This memorandum establishes procedures for developing an environmental impact analysis for all proposed project actions It specifically requires the services of resource

APPENDIX II

specialists BLM Instruction Memo 72-208, issued June 1972, requires the implementation of Instruction Memo 72-135 during the planning of each timber sale and related road construction project.

The Instruction Memorandum may have been issued after the field review was completed Together they do require the use of various resource specialists in the planning of timber sales and related road construction.

"Decisions as to whether the expertise of other specialists is needed are usually made by timber management and engineering personnel who do the detailed planning of timber sales and road construction projects."

Comment Since the aforementioned instructions require the use of other resource specialists, we do not believe the option is left to the timber management and engineering personnel.

"In March 1972, BLM headquarters officials issued and requested its field managers to test proposed guidelines for analyzing and documenting the potential impact of their land management decisions. Neither the Forest Service guidelines nor BLM's proposed guidelines require that, where appropriate, the assistance of resource specialists be obtained and used early in the on-site planning and design of individual timber sale and road construction projects."

Comment This document is BLM Instruction Memo 72-135 discussed above. It was not "proposed" guidelines. It provided guidelines to be implemented with the invitation to field managers to suggest refinements It was directly implemented for timber sales and related road construction by Instruction Memorandum 72-208 as previously discussed

"Without adequate procedures to ensure that project planners seek needed help from specialists, however, the agencies do not have an adequate means for identifying where additional funds are needed to obtain the needed expertise or where help should be sought from States or other Federal agencies who employ resource specialists."

Comment BLM has established a team of multi-discipline professionals for the purpose of identifying needed technology and total manpower requirements for all of the action programs.

Borrowing expertise from States or other Federal agencies is not desirable except in unique instances. For discharging the normal program requirements, BLM should be made self-sufficient in technology. State and other Federal agencies normally have their manpower fully committed.

RECOMMENDATIONS OR SUGGESTIONS

The Forest Service and BLM should

"--Require project planners to obtain the assistance of appropriate specialists in water, recreation, fish, wildlife, range, and timber in the planning and design of each timber sale and road construction project, or document for review by responsible supervisory officials why such assistance is not considered necessary or document that it is not available."

Comment We believe the documents discussed herein meet the recommendation.

"--Require that the specialists' recommendations or suggestions and the planners' reasons for rejecting them, if such is the case, be made part of the project planning documents for review by responsible supervisory officials."

Comment The documents previously discussed require documentation of specialized and public advice and comments. We feel that it may be more important for the decision maker to document his decision, than to explain rejection of any one bit of advice.

"--Identify and analyze where and why needed assistance from specialists could not be obtained and explore ways to overcome this problem."

Comment Partial identification and analysis of needed manpower has been done and budget requests made. Shortage of specialists is not the only problem. Analysis of overall manpower needs will be made. Current problems result from total manpower shortage with which to meet total forest management commitments.

RECOMMENDATIONS TO THE SECRETARIES OF AGRICULTURE AND THE INTERIOR

"We recommend that the Forest Service and BLM

APPENDIX II

"--Require project planners to obtain the assistance of appropriate specialists in water, recreation, fish, wildlife, range, and timber in the planning and design of each timber sale and road construction project, or document for review by responsible supervisory officials why such assistance is not considered necessary or document that it is not available."

Comment Interior has accomplished this recommendation

"--Require that the specialists' recommendations or suggestions and the planners' reasons for rejecting them, if such is the case, be made part of the project planning documents for review by responsible supervisory officials."

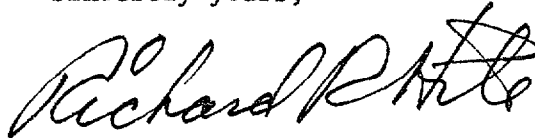
Comment BLM directives require documentation of the planning process advice obtained, identification of the advisors and planning results.

"--Identify and analyze where and why needed assistance from specialists could not be obtained and explore ways to overcome this program."

Comment We agree.

We consider this report as timely in highlighting the degree of emphasis needed in implementing fully the adequate participation by resource specialists in the management of Federal forest lands and appreciate the opportunity to comment upon it in draft form.

Sincerely yours,



Acting Director of Survey and Review

PRINCIPAL OFFICIALS
OF THE DEPARTMENT OF AGRICULTURE
AND THE DEPARTMENT OF THE INTERIOR
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
ASSISTANT SECRETARY, RURAL DEVELOPMENT AND CONSERVATION:		
Thomas K. Cowden	May 1969	Present
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
ASSISTANT SECRETARY, PUBLIC LANDS MANAGEMENT:		
Jack O. Horton	Mar. 1973	Present
Harrison Loesch	Apr. 1969	Jan. 1973
Harry R. Anderson	Aug. 1965	Jan. 1969
DIRECTOR, BUREAU OF LAND MANAGEMENT:		
Burton W. Silcock	July 1971	Present
Boyd Rasmussen	July 1966	June 1971

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