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REPORT TO THE CONGRESS

Problems Related To Restricting The Use Of Motorized Equipment In Wilderness And Similar Areas

B-125053

Department of Agriculture
Department of the Interior

BY THE COMPTROLLER GENERAL
OF THE UNITED STATES

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OCT. 29, 1970

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COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D C 20548

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

This is our report on problems related to restricting the use of motorized equipment in wilderness and similar areas administered by the Forest Service, Department of Agriculture, and the National Park Service, Department of the Interior. 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 that reads "Thomas B. Staats".

Comptroller General
of the United States

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ABBREVIATIONS

GAO	General Accounting Office
NPS	National Park Service

D I G E S T

WHY THE REVIEW WAS MADE

The Wilderness Act of 1964 designated about 9 million acres of Federal lands as the National Wilderness Preservation System. The lands are administered by the Forest Service, Department of Agriculture.

The act also directed the Secretaries of Agriculture and the Interior to study several million acres of additional Forest Service and National Park Service lands for possible future designation as part of the wilderness system. These lands are similar to the wilderness areas and are administered under the same general concepts as lands already in the wilderness system. (See pp. 5 to 11.)

The act, in general, defines a wilderness as an area of land

- where the earth and its community of life are untrammelled by man and where man himself is a visitor who does not remain;
- retaining its primeval character and influence, without permanent improvements or human habitation;
- affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable; and
- having outstanding opportunities for solitude or a primitive and unconfined type of recreation.

In wilderness areas and other areas under study, the Forest Service and the National Park Service construct and maintain trails, bridges, campsites, and sanitary structures and perform such other administrative activities as garbage and litter cleanup, fire protection, and surveillance of users. (See pp. 7 to 11.)

The General Accounting Office (GAO) initiated its review because of indications that limitations placed on the use of motorized equipment for administrative activities resulted in additional costs and other administrative problems in wilderness and similar areas.

FINDINGS AND CONCLUSIONS

The Wilderness Act provides that motorized equipment not be used in wilderness areas "except as necessary to meet minimum requirements for the administration of the area for the purpose of this Act ***." (See p. 12)

Forest Service policy states that the use of motorized equipment for administrative purposes will be limited or controlled and that:

"To the extent feasible, the management goal will be to exclude the sight, sound, and other tangible evidence of motorized equipment and mechanical transport, as well as their speed and efficiency."

The Forest Service believes that its policy is consistent with the intent of the Wilderness Act.

The Forest Service has determined that a significant amount of trail construction, bridge construction, garbage disposal, and other work is necessary to carry out its responsibilities for the preservation and protection of wilderness and similar areas. In carrying out these activities, the Forest Service generally uses hand tools (including some portable power tools), pack animals, and backpackers.

The severe limitations placed on the use of motorized equipment for administrative purposes by the Forest Service result in additional cost and create problems in the protection and preservation of wilderness and similar areas, as shown by the following examples.

- The \$100 million (estimated) cost of planned construction and reconstruction of 18,000 miles of trails in three regions could be reduced, possibly by as much as 50 percent, by using a small trail machine especially designed for such work. The machine has a 24-inch tread width, weighs about 1 ton, and is operated by one man riding on the machine. GAO observed that trails constructed in other than wilderness and similar areas using the machine were essentially the same as those constructed by hand tools. (See pp. 13 to 20.)
- At a relatively inaccessible but heavily used lake area in a wilderness area, about 800 to 1,200 pounds of trash and litter had been collected. Removal would require about 30 man-days by backpackers or, on the basis of earlier Forest Service estimates, about 1 hour of helicopter flight time. A request to use a helicopter--which indicated that the trash and litter had accumulated to a point where it was disrupting the natural environment--was denied. (See pp. 22 and 23.)
- Transporting equipment and materials by pack animals instead of by helicopters for the construction of seven trail bridges in an area required 1,300 trips. The pack animals caused significant damage to the trails used. (See pp. 27 to 29.)

GAO believes that the National Park Service could realize significant savings by using the trail machines in areas managed under the same general concepts as wilderness areas. The National Park Service plans to construct about 2,000 miles of trails in areas where the use of motorized equipment is limited. In one National Park Service region, the average cost to construct trails, without the trail machine, is about \$6,000 a mile. (See p. 32.)

In view of the additional costs and other administrative problems resulting from the policy of limiting the use of motorized equipment for trail construction and other activities in wilderness and similar areas, GAO believes that the Congress may wish to consider the appropriateness of such a policy.

The desirability of congressional consideration is further indicated by Forest Service statements that current funds fall considerably short of overall forest program needs and that significant increases are anticipated in the use of wilderness and similar areas by the public.

RECOMMENDATIONS OR SUGGESTIONS

GAO is making no recommendations or suggestions in this report to the administering agencies. As discussed below, GAO is making its recommendation to the Congress.

AGENCY ACTIONS AND UNRESOLVED ISSUES

The Forest Service believes that

- its policy on the use of motorized equipment is consistent with the intent of the Congress and in the best interests of the wilderness program and the wilderness-using public,
- any substantial change would endanger the long-term perpetuation of the wilderness system, and
- the Wilderness Act did not intend that economy or efficiency should form a basis for deciding when the use of motorized equipment may be permitted. (See app. I, p. 39.)

Similar views were expressed by the Department of the Interior with respect to National Park Service lands being administered under wilderness objectives. (See app. II, p. 42.)

GAO does not believe that economy or convenience should be the sole basis for deciding when motorized equipment should be used but does believe that these factors (as well as others) should be considered in reaching such a decision. The act and its legislative history do not spell out the circumstances under which the use of motorized equipment would be

considered necessary to meet minimum requirements for administration of wilderness areas. (See p. 30)

GAO recognizes that the use of motorized equipment is not compatible with an ideal wilderness concept. Forest Service officials have stated that a basic problem in managing wilderness and similar areas is identifying what exceptions from the ideal wilderness concept would be tolerated by the Congress.

In GAO's view, the construction and presence of trails, bridges, and other facilities in wilderness and similar areas, as well as the presence of litter left in the areas by the users, are basically inconsistent with the ideal wilderness concept. GAO believes that, once decisions have been made to construct such facilities and to dispose of accumulated litter, the factors of economy and convenience as well as others should be considered in determining whether the use of motorized equipment is reasonable and desirable in the circumstances. (See p. 31.)

MATTERS FOR CONSIDERATION BY THE CONGRESS

GAO recognizes that the establishment of national policy for administering wilderness and similar areas is the prerogative of the Congress and that it is the responsibility of the cognizant executive agencies to implement such policy. In view of the substantial cost for administering wilderness and similar areas and of other administrative problems resulting from the limitations on the use of motorized equipment, GAO is recommending that consideration be given in the Congress to providing further guidance to the administering agencies concerning the use of motorized equipment for administrative purposes in wilderness and similar areas.

managed for wilderness purposes under the then-existing administrative regulations until the Congress determines otherwise. The act directed the Secretary of Agriculture to study the primitive areas and report to the President on the suitability of admitting them to the National Wilderness Preservation System. The 1964 act provides that the admission of an area to the system be done only by an act of the Congress.

Hereinafter in this report, the term "wilderness" refers to Forest Service lands that had been proclaimed by the Congress as part of the National Wilderness Preservation System, and the term "primitive" refers to Forest Service primitive areas that had not been so proclaimed at the time of our review.

According to the Forest Service, the 1964 act did not require changes in the administration of wilderness and primitive areas but confirmed a long-established program as a national policy.

In connection with its management functions in wilderness and primitive areas, the Forest Service constructs and maintains such facilities as trails, bridges, campsites, and sanitary structures. (See photos 1 through 4.) The Forest Service also engages in such activities as garbage and litter cleanup, fire protection, and surveillance of the users of the areas.

The significance of Forest Service activities in these areas is indicated by the June 30, 1968, Forest Service plan to construct or reconstruct about 24,000 miles of trails and the need to maintain about 14,000 miles of existing trails. The Forest Service expends about \$2 million annually for the administration and cleanup of the areas, excluding the cost of construction, reconstruction, and maintenance of trails and other facilities.

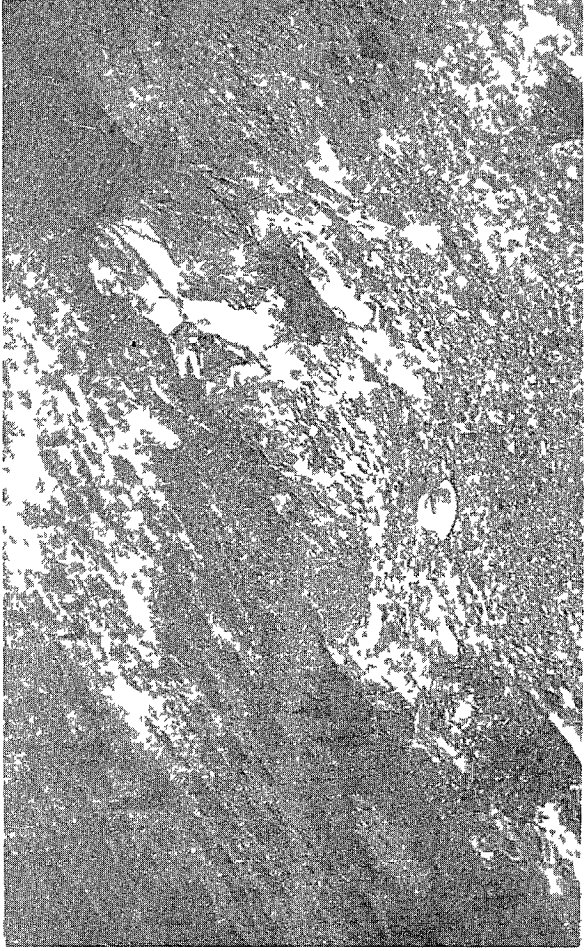


Photo 1: Trail in a Forest Service wilderness area.



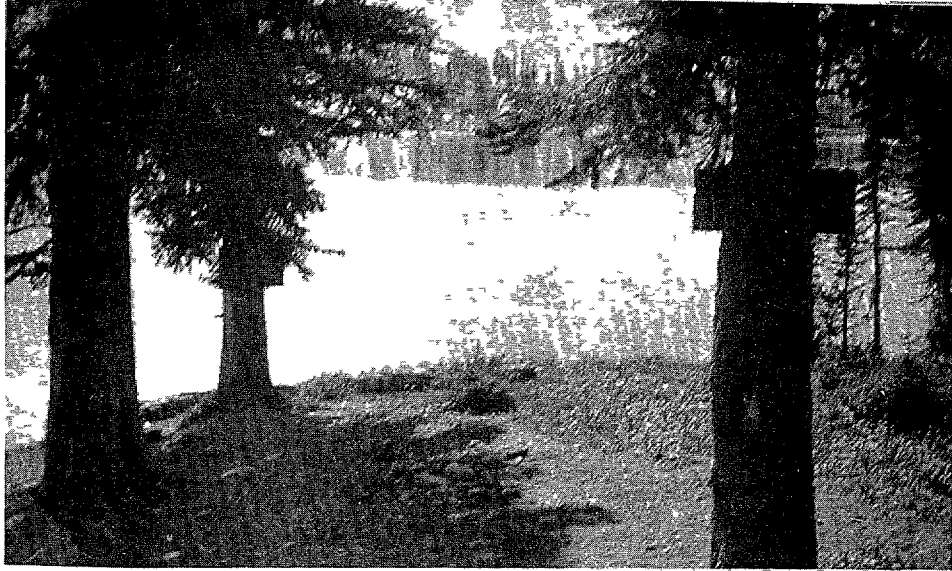


Photo 3: Unimproved campsite in a Forest Service wilderness area

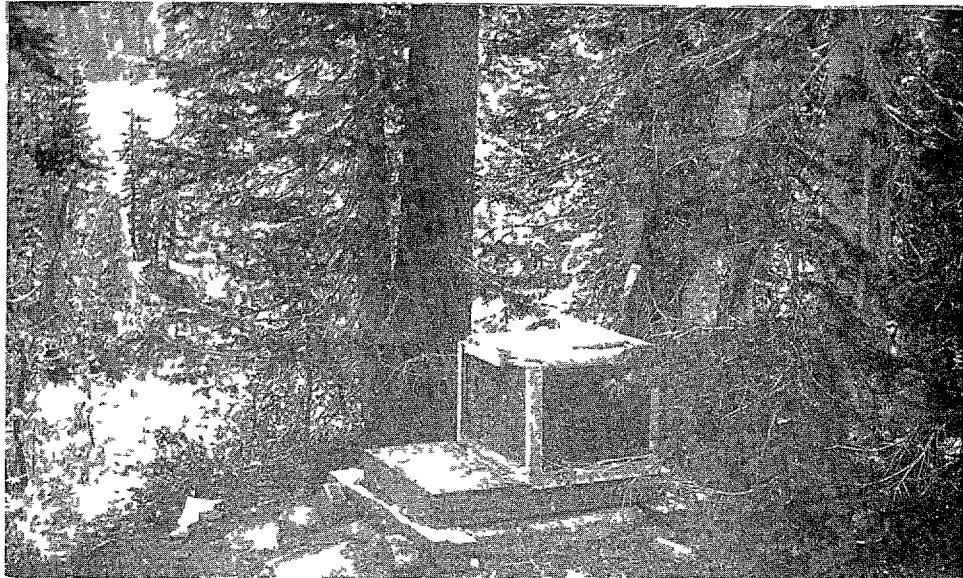


Photo 4: Sanitary facility in a Forest Service wilderness area.

The Forest Service estimates that recreational use of national forest land (including wilderness and primitive areas) in 1970 will be 171.4 million visitor-days, or about 150 percent more than the 68.7 million visitor-days reported in 1963. The Forest Service estimates also that recreational use of wilderness and primitive areas will reach 6 million visitor-days by fiscal year 1970, compared with about 4.7 million visitor-days in calendar year 1967. The Forest Service expects the upward trend of recreational use to continue.

In its fiscal year 1970 budget justification, the Forest Service stated that the demand for outdoor recreational opportunities in the national forests has increased more rapidly than the funds available to provide for recreational use. During the fiscal year 1970 appropriations hearings before the Subcommittee on Department of the Interior and Related Agencies, House Committee on Appropriations, the Forest Service stated that funds appropriated each year for all Forest Service activities were sufficient to finance about 60 percent of the annual needs.

Forest Service headquarters officials advised us that the trails and other facilities in the wilderness and primitive areas generally were not constructed for the convenience of users, but were constructed primarily for the protection of the areas and, to some extent, the users. They stated, for example, that the basic purposes of trails were to (1) disperse users and direct them away from fragile areas that would be damaged by people trodding over them, (2) provide fire protection, and (3) correct unsafe conditions.

A map showing Forest Service wilderness and primitive areas as of February 1970, is included as appendix III.

National Park Service

The Wilderness Act of 1964 did not proclaim any NPS lands as part of the initial National Wilderness Preservation System. The act provided, however, that the Secretary of the Interior study certain lands and make recommendations as to their suitability for admittance to the system, subject to legislative approval.

Legislation governing the administration of national parks, monuments, and reservations by NPS states that the purpose of these lands:

"*** is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."

As of January 1969, NPS was responsible for administering about 28.9 million acres of land. Most of this land is undeveloped and is managed so as to retain its natural conditions. The provision in the Wilderness Act of 1964 for studying NPS lands for possible future admittance to the National Wilderness Preservation System was directed to any roadless areas of 5,000 or more contiguous acres. As of July 1970, none of the NPS lands had been proclaimed as part of the system.

CHAPTER 2

LIMITED USE OF MOTORIZED EQUIPMENT

IN WILDERNESS AND PRIMITIVE AREAS

ADMINISTERED BY THE FOREST SERVICE

The Wilderness Act provides that motorized equipment not be used in wilderness areas "except as necessary to meet minimum requirements for the administration of the area for the purpose of this Act ***." Forest Service policy implementing this provision of the Wilderness Act states that the use of motorized equipment for administrative purposes in both wilderness and primitive areas will be limited or controlled and that:

"To the extent feasible, the management goal will be to exclude the sight, sound, and other tangible evidence of motorized equipment and mechanical transport, as well as their speed and efficiency."

The Forest Service believes that its limitations on the use of motorized equipment are consistent with the intent of the Wilderness Act. The Forest Service policy states that the permission given in the act to use motorized equipment does not imply that such use is compatible with the wilderness concept. The policy states that the Congress merely recognized that it was necessary to provide for certain exceptions in order to meet the minimum needs for administering the areas for the purposes of the act.

As previously stated, the Forest Service has determined that a significant amount of trail construction, bridge construction, garbage disposal, and other work is necessary to carry out its responsibilities for the preservation and protection of wilderness and primitive areas. In carrying out these activities, the Forest Service generally uses hand tools (including some portable power tools), pack animals, and backpackers.

The severe limitations placed by the Forest Service on the use of motorized equipment for administering wilderness

and primitive areas result in additional cost and create problems in the protection and preservation of these areas. For example, the Forest Service could realize significant savings by using a small, specially designed machine for trail construction in wilderness and primitive areas. Also, limitations on the use of helicopters have created problems in carrying out such activities as disposing of garbage and transporting equipment and materials for construction of footbridges.

Additional costs and other problems relating to restricting the use of motorized equipment for administering wilderness and primitive areas are discussed below.

TRAIL CONSTRUCTION

The Forest Service generally prohibits the use of machines for the construction of trails in wilderness and primitive areas. Information obtained by us, however, indicated that the cost of the planned construction and reconstruction could be significantly reduced by the use of a small machine especially designed for trail construction.

The small trail machine is being used by the Forest Service in areas other than wilderness or primitive areas. The machine has a 24-inch tread width, weighs approximately 1 ton, and is operated by one man riding on the machine. (See photo 5.) The machine is capable of constructing, even under difficult conditions, the type of trail generally being provided in wilderness or primitive areas.

Forest Service experience in other than wilderness and primitive areas has demonstrated that a firm trail tread can be built by using this machine for about one half the cost of using hand construction methods. According to a Region 6 engineering official, a machine operator with two helpers can construct about 800 feet of trail a day. He added that, by using only hand construction methods, it would take 12 to 14 men to construct 800 feet of trail a day.

Cost comparisons made by the Forest Service during fiscal years 1968 and 1969 in Regions 6 and 8 and by the Forest Service Equipment Development Center in



Photo 5: Trail machine developed specifically for the construction of trails.

Missoula, Montana, showed that the use of the trail machines on trail construction projects in other than wilderness and primitive areas resulted in estimated average savings of approximately 50 percent, as shown below.

<u>Field locations</u>	<u>Estimated construction cost per mile</u>			<u>Percent savings</u>
	<u>Without trail machine</u>	<u>With trail machine</u>	<u>Difference</u>	
Region 6	\$ 8,830	\$4,530	\$4,300	49
Region 8	3,000	1,330	1,670	56
Region 1 (note a)	10,000	4,920	5,080	51

^aTests by the Equipment Development Center at Missoula, Montana, were performed on a Region 1 project.

At the time of our fieldwork, the Forest Service had not made similar cost comparisons for construction of trails in wilderness and primitive areas.

By letter dated July 7, 1969, an Associate Deputy Chief of the Forest Service advised us that the Forest Service had plans to construct or reconstruct about 24,000 miles of trails in wilderness and primitive areas. A Forest Service regional official advised us that the estimated completion date for the trail system was 1995. About 18,000 of the 24,000 miles are planned for wilderness and primitive areas in Regions 1, 5, and 6. Forest Service field employees advised us that they anticipated that about 90 percent of the trails planned would be constructed to specifications which would make it feasible to use the trail machine.

Applying the 50-percent-savings factor to the Forest Service's estimated cost a mile for trail construction and reconstruction in Regions 1, 5, and 6, we estimate that savings of about \$50 million could be realized by using the trail machine in constructing the 18,000 miles of trails expected to be constructed in wilderness and primitive areas in these three regions.

The Forest Service by letter dated May 7, 1970 (app. I), stated that it felt that the \$50 million saving was greatly overestimated, because there were problems involved in adapting specific project data to include projections on a nationwide or regionwide basis. The Forest Service pointed out that conditions varied so much at different elevations, at different National Forests, and different soil types and ground cover that cost projections were extremely difficult. The Forest Service added, however, that information on the total trail system regarding classification of terrain variables--which would be needed to make precise estimates of cost savings--was not available.

In addition, the Forest Service stated that it was analyzing the objectives of trails in wilderness and primitive areas and that it was hoped and expected that many trails would not actually have to be constructed in a conventional manner. The Forest Service indicated that, instead, persons could be guided, to the extent needed, through marking techniques.

Our estimate of savings is based on the latest Forest Service information available as of December 1969. We recognize that the estimate may not be precise but believe that it provides some perspective as to the significance of the potential savings available by using trail machines to construct and reconstruct trails in wilderness and primitive areas.

In July 1965, the Region 6 Forester asked the Chief of the Forest Service to authorize the use of the trail machine for constructing a trail within the Glacier Peak Wilderness Area in Washington. The request stated that the use of the trail machine had significantly reduced the cost of trail construction in other than wilderness and primitive areas. The Regional Forester expressed the belief that the use of a trail tractor would not impair the area's soil and water values and trailside aesthetics.

The Chief disapproved the request and advised that:

--the use of a trail machine could not be justified in this particularly sensitive area,

- cost was a minor criterion in justifying the use of a machine in the wilderness,
- enduring evidence would show that the trail was constructed with mechanized equipment, and
- experience indicated that the use of a machine would lead to construction refinements and excess clearing widths inconsistent with wilderness objectives.

A Forest Service official from the Division of Recreation advised us that the Chief had approved the use of the trail machine in only one instance in wilderness and primitive areas, even though the Chief's Office was fully aware of the trail machine and of the savings its use permits. The official stated that the one instance involved repairs to a trail that had been extensively damaged by flooding and that the use of the trail machine resulted in completing the job about 3 years sooner than if the machine had not been used.

We visited several segments of trails constructed in other than wilderness and primitive areas by using trail machines, as well as trails constructed inside wilderness areas by using hand construction methods, and could not observe any noticeable differences in the completed construction work. Our observations included segments of trail in or near the Goat Rocks Wilderness within the Gifford Pinchot National Forest in the State of Washington, which were constructed by using such conventional hand tools as picks, shovels, explosives, and rock drills. (See photos 6 and 7.) These sections were completed at a cost of about \$5,480 a mile.

We also observed sections of trails constructed by the use of trail machines in other than wilderness and primitive areas in the Mt. Hood National Forest in Oregon. Although hand tools were used, most of the work was done with the trail machine. The section of trail in photo 8 was constructed for about \$2,323 a mile. Photo 9 shows another example of a trail section constructed by using trail machines.

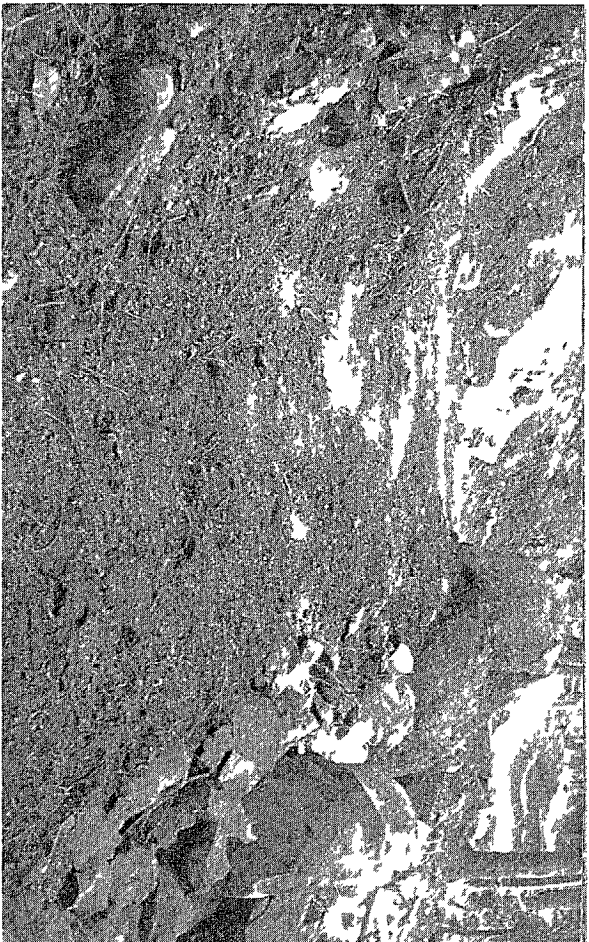
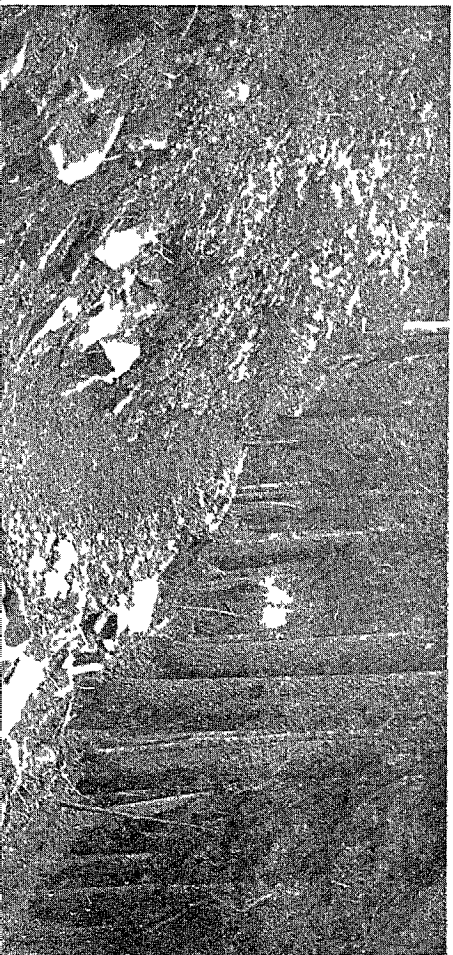


Photo 6: Hand constructed trail near a Forest Service wilderness area.





Photo 8: Machine-constructed trail in a Forest Service nonwilderness area.



The trails constructed with trail machines generally did not appear to us to have excessive clearing widths or construction refinements but did appear to have a firmer trail tread due to the additional compaction attained with the machine's weight.

A Region 6 engineering official stated that, because of the machine's operational capabilities, it was difficult by casual observation to ascertain whether the construction had been performed by hand or machine methods. The official advised us that the additional compaction obtained from the use of trail machines would result in less soil erosion and would reduce the frequency of future maintenance work.

In addition to using hand tools, the Forest Service commonly uses such items as explosives, power saws, and rock drills for trail construction in wilderness and primitive areas. The Forest Service has justified the use of these tools because of the significant reductions in trail construction costs and in the time required to complete the necessary work. In our opinion, the same reasons could be considered applicable to the use of the trail machine in wilderness and primitive areas.

TRAIL MAINTENANCE

The Forest Service generally authorizes the use of power saws in wilderness and primitive areas for trail construction but not for normal trail maintenance. In constructing trails, trees and snags are generally cut with power saws; whereas, in maintaining trails, fallen trees are generally cut with hand saws and axes.

The Forest Service manual provides that, for maintenance of trails, powered, portable hand tools--such as chain saws and rock drills--may be approved in those cases where it will not be reasonable to accomplish the work with nonpowered hand tools. For example, the manual states that a trail with only a few small, fallen trees per mile can and should be cut out by use of axes and crosscut saws, while a trail with three or four hundred fallen trees per mile would obviously require the use of power saws. The manual states also that regional foresters will determine those places where it will be unreasonable to use hand equipment.

The Gifford Pinchot National Forest Supervisor requested the Regional Forester to authorize the use of power saws for construction and maintenance work in the Mt. Adams Wilderness Area. The request for the construction projects stated that the use of power tools would more than double the output of the trail crew. The request for using power saws on maintenance projects indicated that approximately 100 logs, or 5 logs per mile, required cutting and stated that power saws would be advantageous because some of the trees were difficult to cut by hand and experienced hand sawyers were difficult to find.

On May 23, 1969, the Regional Forester approved the use of power saws for trail construction but not for trail maintenance projects, stating that the use of power saws was well supported for trail construction but not for trail maintenance.

The Forest Supervisor of the Mt. Baker National Forest requested the Regional Forester to authorize the use of power saws on trail maintenance projects. The request indicated that, because of the short working season and the

large diameter of the windfall (downed trees) anticipated, the use of power saws would be justified.

The request was disapproved by the Regional Forester, who stated that specific requests should be made for only those areas with concentrated windfall and not for all the trail mileage in the area.

According to Forest Service personnel engaged in trail maintenance work, strict compliance with Forest Service policies would require making surveys to accurately count the trees which are down on each specific trail segment. We were further advised that this was not always practicable because of the short working season, staff limitations, and the extensive trail mileages in wilderness areas.

Regional officials advised us that it was generally the policy of Region 6 to use hand saws and axes for trail maintenance work, even though this was not the most economical or practical method of performing the work.

CLEANUP ACTIVITIES

According to the Forest Service manual, regional foresters may approve transport and supply by aircraft when a problem exists which cannot reasonably be met with the use of primitive methods and when a solution to the problem is necessary to meet wilderness objectives. Our review in Region 6 of the Forest Service showed that the use of helicopters was not allowed in wilderness and primitive areas for cleanup activities, such as collecting and removing the garbage left by visitors.

In November 1966, the Mt. Baker National Forest Supervisor requested the use of a helicopter for removing garbage from a heavily used lake area in the Glacier Peak Wilderness. The request stated that, even though the lakes were accessible by only one extremely steep trail requiring a strenuous 6-hour hike, the area was quite heavily used because it had a spectacular view and the six lakes located there provided excellent fishing. The request stated further that garbage and litter left by visitors had accumulated to a point where it was disrupting the natural environment and

that the use of a helicopter would be the only feasible way to remove the garbage and litter.

On February 9, 1967, the Regional Forester advised the Forest Supervisor that the use of helicopters in this area was not in keeping with wilderness objectives and that a decision could not be made until a more complete analysis was performed. Subsequent correspondence indicates that additional information was submitted on February 27, 1967. In a memorandum dated May 10, 1968--some 14 months later--the Regional Forester stated that the request could not be approved because a much more detailed analysis was still needed.

In subsequent discussions with a Mt. Baker National Forest official, we were advised that in the summer of 1969 about 800 to 1,200 pounds of garbage had been collected at one of the lakes in the area for removal. This official stated that backpackers would require an estimated 30 man-days to remove the garbage from the area.

Earlier correspondence indicated that the garbage could be removed by contracting the use of a helicopter which was already authorized to ferry equipment and supplies for a nearby mining operation¹ located in the same wilderness area. According to estimates prepared in 1967, about 1 hour of flight time would have been necessary to remove the garbage and debris from the area surrounding the lakes. Without the use of a helicopter, a Mt. Baker National Forest official stated that the garbage problem could only be solved by removing the garbage with backpackers, which is considered impractical, or by packing the garbage to another location within the wilderness for burial. He further explained that burying the garbage would not be consistent with wilderness objectives.

¹Private mining operations in wilderness areas generally are authorized by the Wilderness Act to continue if the mines were in existence prior to January 1, 1984.

INSPECTION ACTIVITIES

Within wilderness and primitive areas, the Forest Service is responsible for performing such routine activities as fire detection and inspections. Region 6 of the Forest Service generally discourages the use of motorized equipment in performing inspection activities in wilderness and primitive areas.

For example, Region 6 is responsible for performing annual engineering inspections on the condition of 11 reservoirs within the Eagle Cap Wilderness Area in Oregon. The inspections are accomplished via trail on horseback or on foot.

On December 6, 1967, the Regional Engineer requested that comparative estimates be made of the yearly cost and man-days to inspect all dams in the Eagle Cap Wilderness using helicopters and other means of travel. The analysis, prepared by the Forest Supervisor of the Wallowa-Whitman National Forest, showed that, with the use of helicopters, annual inspections could be accomplished at less than half the cost and at the same time reduce the engineering time necessary to perform the work by more than 100 man-hours.

According to a Region 6 engineering official, the savings in cost and time as shown by the 1967 analysis did not justify using a helicopter to perform these inspections. He further stated that these inspections would continue to be performed by traveling on foot or on horseback.

REPAIR OF RESERVOIRS

The limitation on the use of motorized equipment for making reservoir repairs has caused concern by regional engineering officials as to whether the necessary engineering standards can be achieved.

During the 1910 to 1920 period, reservoirs were constructed within the Eagle Cap Wilderness of Region 6 for the purpose of storing water that would provide additional irrigation capacity in the late summer months for private farm lands near the wilderness area. These reservoirs are generally operated and maintained, at no cost to the

Government, by private landowners under special use permits issued by the Forest Service. To perform maintenance work, the permittee is required to utilize antiquated tools, such as horsedrawn scrapers. (See Photo 10.) According to a regional engineering official, some of these reservoirs (1) do not comply with present-day engineering standards, (2) are in critical need of repairs, and (3) have a high potential for flood damage in the event of failure.

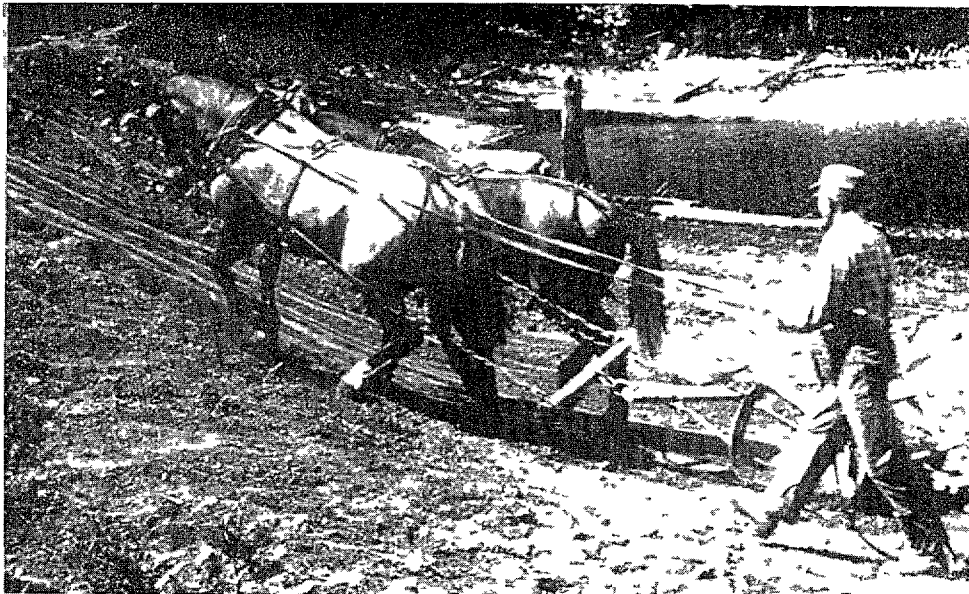


Photo 10: Scraper used to repair a reservoir in a Forest Service wilderness area.

In 1968, repairs were made to the Minam Lake Reservoir within the Eagle Cap Wilderness of Region 6. Regional engineering officials advised us that inspections performed in 1969 showed that the compaction standards specified were not attained over the reservoir outlet pipe, which resulted in significant cracks in the dam. The Regional Engineer stated that additional repair work was required to keep the structure in a safe and usable condition.

Regional engineering officials felt that a higher degree of the desired compaction could have been achieved by using special compacting equipment. The Regional Engineer

stated, however, that a helicopter would have been necessary to transport the equipment to the reservoir area. He stated also that, in view of the experience gained from the Minam Lake Reservoir project, the use of antiquated tools might not achieve desired engineering standards and could cause problems when maintenance work is performed on other reservoirs.

CONSTRUCTION OF BRIDGES

As part of the trail systems in wilderness and primitive areas, the Forest Service provides trail bridges. These bridges generally are constructed from such native materials as timber, although man-made materials are also used.

The methods used by the Forest Service to transport bridge materials to the construction sites varied from using such primitive means as pack animals to such mechanized transport as helicopters.

For example, in 1969 on a bridge construction project within the Glacier Peak Wilderness Area, which is located in the Mt. Baker and Wenatchee National Forests, a helicopter was used to transport the necessary materials to the construction site. In an effort to minimize the effect of helicopter use on the area visitors, flights were not allowed between 5 p.m., Friday, and 6 p.m., Monday.

On another construction project in the same wilderness, approval was also given to use a helicopter for transporting bridge construction materials. The request, from the Acting Forest Supervisor of the Mt. Baker National Forest, stated, in part, that:

- bridge components weighing about 15 tons would require about 150 round trips using pack animals to carry the materials 6 miles to the construction site,
- trail damage by pack animals would be quite high and would be detrimental to the wilderness, and
- wilderness users generally prefer the Forest Service to use helicopters rather than pack animals for bona fide construction.

The Region 6 Forester approved the request, stating that, because of the bulkiness and weight of the material involved, the use of air transport would be authorized.

On a project within a Region 5 primitive area--the Salmon-Trinity Alps Primitive Area in California--a helicopter was not used for transporting bridge materials to work-sites. A Region 5 engineering official advised us that using a helicopter had been considered but the Forest Supervisor did not make the request.

The Salmon-Trinity Alps Primitive Area project required construction of seven aluminum bridges which were completed in 1968. (See photo 11.) Although gasoline-powered cement mixers were used on the bridge construction work, all materials--including cement, coarse aggregate, structural aluminum, and reinforcing steel--were transported by pack animals from loading areas located between 1 mile and 6-1/2 miles from the construction sites. The materials were transported over several trail routes and required an estimated 1,300 trips by pack animal. The final construction report for this project to the regional office stated that the use of pack animals for transporting construction materials caused rapid deterioration of the trails involved and that, for future projects of this type, the use of helicopters should be considered.



Photo 11: Aluminum bridge in a Forest Service primitive area.

In 1968, the Forest Service published the results of a study undertaken to determine the characteristics, values, and management preferences of the wilderness users in the Pacific Northwest. The results of the study showed that the use of helicopters for management and administrative needs was acceptable to the majority of wilderness visitors, particularly where such use was related to the preservation of the wilderness values by controlling fires, eliminating overuse of trails by large pack trains, and protecting wildlife.

CONCLUSIONS, FOREST SERVICE COMMENTS, AND OUR EVALUATION

We recognize that it is the prerogative of the Congress to establish a national policy for administering wilderness and primitive areas and the responsibility of the executive agencies to implement such a policy. The purpose of this report is to point out problems caused by the limitations placed on the use of motorized equipment in the administration of such areas as a result of the administering agencies' interpretation of the intent of the Wilderness Act.

As previously discussed, the Forest Service would, we believe, realize significant savings by using a small machine specifically designed for trail construction to construct trails in wilderness and primitive areas. Also, it appears to us that there are many other situations where the use of motorized equipment, such as helicopters, would result in more effective, efficient, and economical administration of wilderness and primitive areas.

The Forest Service commented on our draft report by letter dated May 7, 1970. (See app. I.) The Forest Service stated its belief that its interpretation of the Wilderness Act of 1964 is consistent with the intent of the Congress and in the best interests of the wilderness program and the wilderness-using public. The Forest Service stated further that any substantial change would endanger the long-term perpetuation of the wilderness system. In support of its position, the Forest Service stated that:

--There was nothing in the act or its legislative history to indicate that economy or convenience forms

a basis for deciding when the use of motorized equipment may be permitted.

--The use of motorized equipment for administrative purposes was authorized only when necessary for administration of the areas for the purposes of the act.

--The use of motorized equipment or mechanical transport and the landing of aircraft were incompatible with the wilderness concept as defined in the act, and savings that might result from increased use of such equipment could be realized only at the expense of the wilderness resource.

We do not believe that economy or convenience should be the sole basis for deciding when motorized equipment should be used in wilderness and primitive areas. We do believe, however, that these factors should be among others considered in reaching such a decision. Our review of the legislative history of the Wilderness Act did not reveal any indications that the Congress had intended that economy and convenience were not to be considered in deciding whether the use of motorized equipment was necessary to meet the minimum requirements for administration of the areas for the purpose of the act.

As stated on page 7 of the report, the Forest Service has determined that a substantial amount of activities, such as trail construction, bridge construction, and litter cleanup, are necessary in the administration of wilderness and primitive areas. Further, in carrying out certain of these activities, the Forest Service has utilized gasoline-powered cement mixers, power saws, motorized rock drills and, in some instances, helicopters and the trail machine. Uses of such equipment by the Forest Service were apparently justified on the basis of economy or convenience.

We recognize that the use of motorized equipment is not compatible with an ideal wilderness concept. During our review, Forest Service headquarters officials advised us that the Forest Service was faced with a basic problem of identifying what exceptions from the ideal wilderness

concept would be tolerated by the Congress in connection with Forest Service's management of the areas.

In our view, the construction and presence of trails, bridges, and other facilities in wilderness and primitive areas, as well as the presence of litter left in the areas by the users, are basically inconsistent with the ideal wilderness concept. Once decisions have been made to construct such facilities and to dispose of accumulated litter, we believe that the factors of economy and convenience as well as others should be considered in determining whether the use of motorized equipment is reasonable and desirable in the circumstances.

We believe that, in view of the substantial cost and other administrative problems involved in trail construction and other activities in wilderness and primitive areas, the anticipated increase in the use of these areas by the public, and the Forest Service's view that available funds are not sufficient to meet overall forest program needs, further consideration should be given to the appropriateness of Forest Service policy limiting the use of motorized equipment in such areas.

Forest Service officials have stated that this policy is based on their interpretation of the intent of the Wilderness Act. Accordingly, we believe that the Congress may wish to consider the information presented in this report, with a view toward providing further guidance regarding the use of motorized equipment for administrative purposes in wilderness and similar areas.

CHAPTER 3

LIMITED USE OF MOTORIZED EQUIPMENT

IN CERTAIN AREAS ADMINISTERED BY THE

NATIONAL PARK SERVICE

The National Park Service (NPS) limits the use of motorized equipment in the administration of areas that are being managed so as to retain natural conditions, including those areas being considered for possible admittance into the National Wilderness Preservation System.

NPS administrative policies require that:

"The off-road use of motorized equipment for official purposes shall be carefully planned and controlled to meet the requirements of area management with due regard for the protection of human life and park resources."

NPS policies require further that a regional director must approve the use of any motorized equipment for trail construction or maintenance work. We were advised by NPS officials that trail machines were not used for trail construction and maintenance work in the areas managed by NPS. NPS plans to construct about 2,000 miles of trail in areas where the use of motorized equipment is limited. We were advised by a NPS Western Regional Office official that it was feasible to use trail machines on NPS trail construction projects.

In the Western Region, NPS records indicate that it costs an average of about \$6,000 a mile to construct trails without the use of the trail machine. Consequently, because of the savings available to the Forest Service by using the trail machine (p. 15), we believe that substantial savings could also be realized by NPS by using trail machines for the construction of the planned 2,000 miles of trails.

NPS COMMENTS AND OUR EVALUATION

The Department of the Interior commented for NPS on our draft report by letter dated May 19, 1970. (See app. II.) The Department stated that, under present NPS policy, the use of motorized equipment was to be permitted only to the extent necessary to meet minimum administration needs to protect the resources of the area, including such emergencies as fire and rescue operations. The Department stated further that:

"The administrative policies which have been developed as guides to the management of the 57 areas of the National Parks totaling approximately 27,104,000 acres of land, which are being studied for incorporation under the Wilderness Program, are in conformance with the Wilderness Act and other Acts of Congress applicable to the National Park System and individual areas. We recommend no change in policy justified solely or primarily on the basis of cost savings. We do, however, recognize the need for uniform application of policies, and feel that the Park Service's policy guides provide such a basis for the Regional Directors and Park Superintendents."

We believe that the NPS position is essentially the same as the Forest Service position discussed on pages 29 to 31.

CHAPTER 4

MATTER FOR CONSIDERATION BY THE CONGRESS

We recognize that the establishment of the national policy for administering wilderness and similar areas is the prerogative of the Congress and that it is the responsibility of the cognizant executive agencies to implement such policy. In view of the substantial cost for administering the areas and of the administrative problems resulting from the limitations on the use of motorized equipment, we recommend that consideration be given in the Congress to providing further guidance to the administering agencies on the use of motorized equipment for administrative purposes in wilderness and similar areas.

CHAPTER 5

SCOPE OF REVIEW

Our examination included a review of applicable laws, departmental policies, and agency regulations. We performed work at the Forest Service and NPS headquarters offices in Washington, D.C., as well as Forest Service field installations in San Francisco, California, and in Portland, Oregon, and at NPS installations in San Francisco. Our review at these locations included examination of pertinent documents, discussions with appropriate agency representatives, and visits to selected wilderness and similar areas.

APPENDIXES

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

Washington, D.C. 20250

May 7, 1970

1420



Mr. Victor L. Lowe
Associate Director of Civil Division
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Lowe:

Thank you for the opportunity to comment on your proposed report to the Congress on problems related to restrictions on the use of motorized equipment in wilderness areas. The report outlines the auditors' view of the Forest Service interpretation of the Wilderness Act as it relates to use of motorized equipment. It also estimates some costs of managing the National Forest Wilderness under this interpretation, and suggests that Congress may wish to consider further guidance in the administrative use of motorized equipment.

We believe that the Forest Service interpretation is consistent with the intent of Congress. It is our firm belief, also, that such interpretation is in the best interests of the wilderness program and of the wilderness-using public, and that any substantial change would endanger the long term perpetuation of the wilderness system. Further, we feel that the potential savings that would result from a more liberal use of mechanized equipment have been greatly over-estimated.

While the Act provides for some administrative license in the use of mechanized equipment, it clearly states that such use shall not be permitted "except as necessary to meet the minimum requirements for administration of the area for the purposes of the Act" (underlining added).

In considering this matter, a few general premises must be accepted from the Wilderness Act itself. They are basic to the consideration of any policy governing the management of the National Forest Wildernesses created by the Act.

APPENDIX I

Page 2

- The use of motorized equipment or mechanical transport and the landing of aircraft are incompatible with the wilderness concept as defined in the Wilderness Act.
- There can be circumstances in which it may be necessary to resort to some nonconforming acts in the protection and administration of the areas designated.
- For public use, these nonconforming acts shall be only those specifically excepted in the Act
- For administrative use, they are authorized only when necessary in the administration of the areas for the purposes of the Act.
- There is no other justification for such nonconforming practices or equipment in the administration of National Forest Wilderness.
- The Act neither says nor implies that the use of nonconforming equipment nor the following of nonconforming practices, other than the exceptions noted above, is any more acceptable on the part of administrators or their cooperators than it is on the part of the wilderness-using public.

Sound administration requires a distinctive agency policy which protects the very fragile wilderness resource. We have found in almost 50 years of wilderness management experience that, unless the wilderness resource is zealously protected, it will be eroded away by noncompatible activities. While it is possible to rationalize justifications for exceptions to the basic policy, each such rationalization chips away a part of the wilderness resource.

There is nothing in the Wilderness Act, nor in its legislative history, to indicate that economy or convenience forms a basis for deciding uses which may be permitted. Some additional cost is clearly justified in order to maintain an enduring resource of wilderness. Basically, this is not different from our practices outside of wilderness which require extra measures to protect other resources. Sodding a backslope to prevent erosion adds to the cost of a road, and keeping slash out of a creek or leaving game nesting trees adds costs to a timber sale.

In Chapter 2 of the draft report, a construction cost comparison is made "without" and "with" a trail machine. The estimated cost figures used represent specific projects previously constructed.

Some of the problems we have Service-wide include attempts to adapt such specific project data to include projections on a nationwide or Region-wide basis. Conditions vary so much at different elevations, on different National Forests, with different soil types and ground cover, that cost projections are extremely difficult.

Information on the total trail system regarding classification of terrain variables affecting construction is not available. Therefore, extrapolation of trail costs may not be representative or meaningful.

We are continuing to analyze the objectives of trails in Wilderness. It is hoped and expected that many trails will not actually have to be constructed in a conventional manner. People would be guided, to the extent needed, through marking techniques.

It is our judgment that such cost savings as might be made by liberalizing the policy to permit expansion of noncompatible use in wilderness could be realized only at the expense of the wilderness resource, and would contribute to the long range degradation of the National Forest Wilderness system.

Sincerely,


A. W. Greeley
Associate Chief



United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D C 20240

MAY 19 1970

Mr. Allen R. Voss
Associate Director, Civil Division
General Accounting Office
Washington, D. C. 20548

Dear Mr. Voss

The Department has reviewed your draft report to Congress on "Problems Related to Restrictions on the Use of Motorized Equipment in Wilderness and Similar Areas, Department of Agriculture and Department of the Interior." We have had the National Park Service review your conclusions that Congress may wish to provide further guidance to the agencies regarding the use of motorized equipment for construction and administrative purposes.

After careful review of the report's recommendations, it is concluded that under the present policy provisions of the NPS the use of motorized equipment is to be permitted only to the extent necessary to meet minimum administration needs to protect the resources of the area, including emergencies such as fire and rescue operations.

The administrative policies which have been developed as guides to the management of the 57 areas of the National Parks totaling approximately 27,104,000 acres of land, which are being studied for incorporation under the Wilderness Program, are in conformance with the Wilderness Act and other Acts of Congress applicable to the National Park System and individual areas. We recommend no change in policy justified solely or primarily on the basis of cost savings. We do, however, recognize the need for uniform application of policies, and feel that the Park Service's policy guides provide such a basis for the Regional Directors and Park Superintendents.

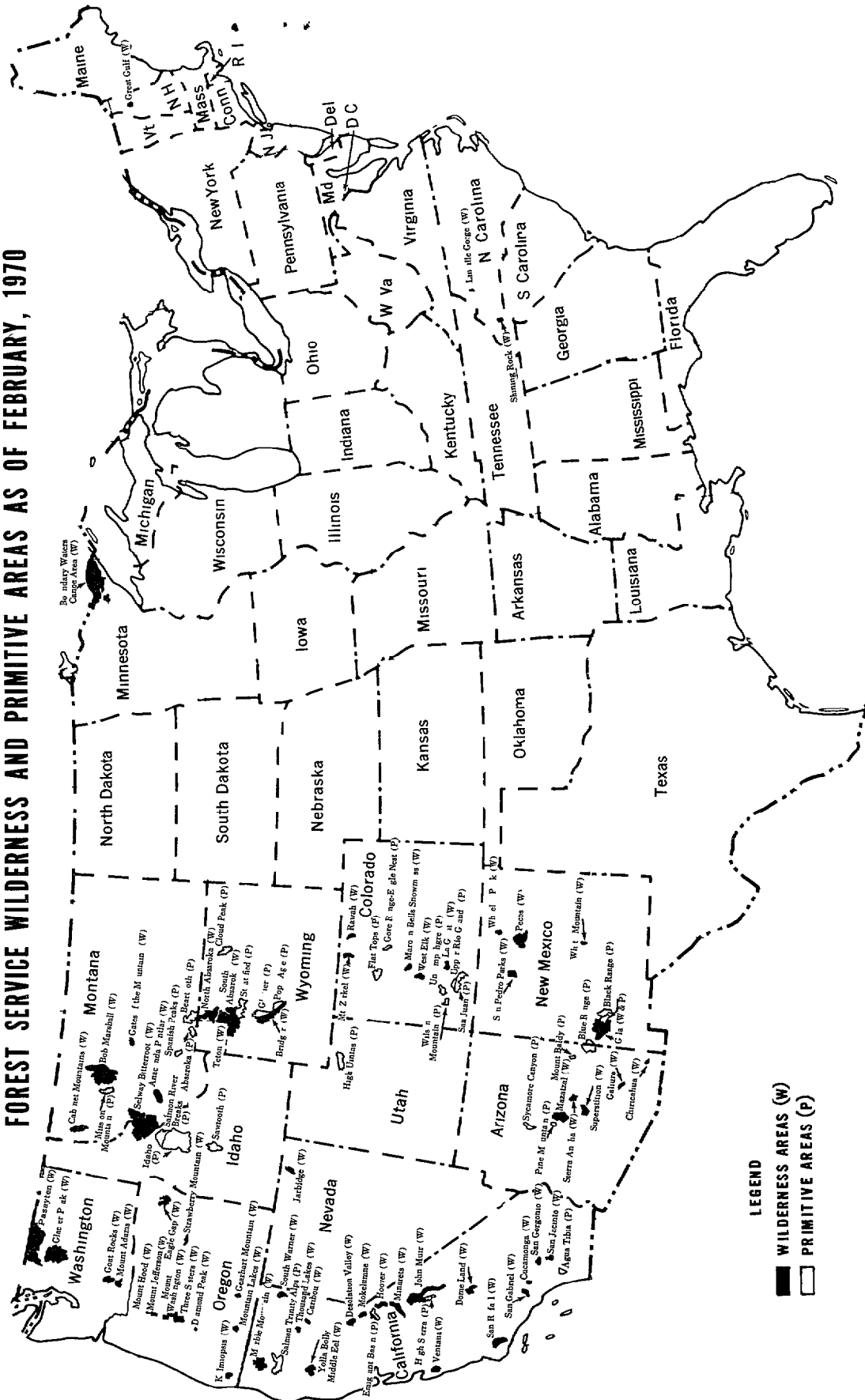
We appreciate the opportunity to have reviewed your report in draft.

Sincerely yours,

J. V. Hall, Jr.

Director of Survey and Review

FOREST SERVICE WILDERNESS AND PRIMITIVE AREAS AS OF FEBRUARY, 1970



LEGEND
 ■ WILDERNESS AREAS (W)
 □ PRIMITIVE AREAS (P)

BEST DOCUMENT AVAILABLE

PRINCIPAL OFFICIALS
OF THE DEPARTMENT OF AGRICULTURE
AND THE DEPARTMENT OF THE INTERIOR
RESPONSIBLE FOR THE ADMINISTRATION OF
ACTIVITIES DISCUSSED IN THIS REPORT

<u>Tenure of office</u>	
<u>From</u>	<u>To</u>

DEPARTMENT OF AGRICULTURE

SECRETARY OF AGRICULTURE:

Orville L. Freeman	Jan. 1961	Jan. 1969
Clifford M. Hardin	Jan. 1969	Present

ASSISTANT SECRETARY, RURAL DEVELOPMENT AND CONSERVATION:

John A. Baker	Aug. 1962	Jan. 1969
Thomas K. Cowden	May 1969	Present

FOREST SERVICE:

Edward P. Cliff, Chief	Mar. 1962	Present
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DEPARTMENT OF THE INTERIOR

SECRETARY OF THE INTERIOR:

Stewart L. Udall	Jan. 1961	Jan. 1969
Walter J. Hickel	Jan. 1969	Present

ASSISTANT SECRETARY FOR FISH AND WILDLIFE AND PARKS (note a):

Stanley A. Cain	May 1965	Aug. 1968
Clarence F. Pautzke	Oct. 1968	Feb. 1969
Leslie L. Glasgow	Mar. 1969	Present

NATIONAL PARK SERVICE:

George B. Hartzog, Jr., Director	Jan. 1964	Present
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^aTitle changed from Assistant Secretary for Fish and Wildlife, Parks and Marine Resources effective April 30, 1970.