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The Honorable Henry S. Reuss, Chairman  
Subcommittee on Conservation and  
Natural Resources  
Committee on Government Operations  
House of Representatives

Dear Mr. Chairman:

In accordance with your November 22, 1972, request and subsequent agreements with your office, we are reporting on the results of our survey of the Forest Service's policies, procedures, and practices for determining allowable timber harvest levels on national forest land.

We made our survey at the Forest Service headquarters in Washington, D.C., and at selected field offices in its Intermountain and Pacific Northwest regions. We reviewed applicable legislation and Forest Service policies, procedures, practices, and records relating to allowable harvest levels and discussed our observations with Forest Service headquarters and field officials.

We initiated our survey because of the growing concern of the Congress and the public about the Forest Service's ability to increase or even maintain its recent annual timber output levels without depleting the timber supply and sacrificing other forest-resource-use and environmental objectives.

Before our survey the Forest Service had made several studies which identified the need to improve forest management procedures and practices to improve the accuracy of the allowable harvest levels. During our survey the Forest Service adopted an action plan to improve the accuracy of its allowable harvest levels. In addition, field offices were determining new allowable harvest levels in accordance with revised manual instructions called for in the action plan. Because it was too early to evaluate the results of these actions, we discontinued our survey.

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We did note, however, certain ways we believed the Forest Service could improve its planning for allowable harvests. We brought these observations to the attention of the Chief of the Forest Service by letter dated March 15, 1973, and requested comments on the actions taken or planned by the Forest Service on them.

Our observations and subsequent Forest Service actions are discussed below following descriptions of the allowable harvest and the Forest Service's efforts to improve allowable harvest computations.

#### ALLOWABLE HARVEST

The Forest Service manages 187 million acres of federally owned land, of which 92 million acres are classified as commercial forest land. The Multiple-Use Sustained-Yield Act of 1960 (16 U.S.C. 528) requires that the Forest Service manage its land to meet a combination of uses--recreation, range, water, wildlife, fish, and timber--for a high-level, sustained-yield output. The act defines sustained yield as:

"the achievement and maintenance in perpetuity of a high-level annual or regular periodic output of the various renewable resources of the national forests without impairment of the productivity of the land."

The amount of timber which the Forest Service can sell annually without depleting its forests is termed "allowable harvest" and is a vital aspect of sustained-yield management. The allowable harvest is computed on a 10-year cycle for each forest and is to be coordinated with the other uses of the forest land. Interim adjustments can be made to increase or decrease the allowable harvests as changed conditions and information warrant.

Each forest's allowable harvest is ordinarily programed for sale in equal annual components over a 10-year cycle. Timber sale volumes, however, may vary from year to year but, over the cycle, must not exceed the 10-year allowable harvest volume. During the 10-year period ended June 30, 1973, the annual allowable harvest for all national forests averaged 13.25 billion board feet, while annual timber sales averaged 12.14 billion board feet.

The basic information used for determining the allowable harvest is forest inventory data--including the amount of forest land available for commercial timber purposes and projected timber

growth and yield rates. This data must be as accurate as possible to insure that allowable harvest levels are consistent with sustained-yield requirements.

EFFORTS TO IMPROVE ALLOWABLE  
HARVEST COMPUTATIONS

As the result of several studies, the Forest Service has taken and is taking certain actions which should result in improved timber management practices related to computing allowable harvest levels.

In March 1971 the Forest Service completed a nationwide review of its forest timber management practices and procedures and issued a report which identified 30 management problems--9 of which concerned various aspects of allowable harvest computations. The nine problems generally concerned the Service's need to (1) develop and use an adequate system to collect information on land-use capability and suitability for use in determining the allowable harvest levels, (2) periodically review and adjust allowable harvest levels to insure that the land on which they were based was still available and suitable for timber production, and (3) improve techniques for updating allowable harvest levels to reflect intensified management practices, such as reforestation and thinning.

In October 1971 the Intermountain Forest and Range Experiment Station issued a research report on the stratification of forest land for timber management planning in six western national forests. The report disclosed that, because of misclassifications, the timber-growing base area--land considered suitable and available for timber production--in each forest was overstated from 11 to 40 percent and the combined areas were 22 percent less than the Forest Service had previously estimated. The misclassified acreage included land highly unstable or low in productivity, land devoted to non-timber use, and land not available for timber production because of its size or location. The report stated that the underlying problem in past inventories was inadequate information about the land, its ecology, and its uses.

The report concluded that, when this information and the land-use planning are inadequate, the tendency is to overestimate the timber-growing base area. This, in turn, inflates allowable harvest levels. The allowable harvest levels for the six forests may not have been overstated to the same degree as the timber-growing base area because forest managers had made judgmental adjustments for factors not considered in the timber inventories. The report, however, did not state to what degree the allowable harvest levels were overstated.

In June 1972 the Forest Service established an action plan to improve its allowable harvest computations. The actions to be taken included:

- Revising the Forest Service Manual to provide guidelines for collecting forest area information by land-use capability and suitability classes and for excluding from the allowable harvest those areas that cannot be harvested within acceptable environmental quality standards.
- Issuing guidelines that provide for annually updating the allowable harvest if significant changes occur, such as more intensive management, changes in multiple-use requirements, or disastrous fires.
- Developing and implementing (1) inventory processes which will provide adequate "in place" resource data and (2) computer programs for data input and display.

At the time of our survey the Forest Service was in various stages of implementing the actions called for in the plan. The Forest Service estimates that it will take several years, depending on funding levels, to fully implement all actions at the forest level.

During our survey the Forest Service, as part of the action plan, issued instructions to its field offices to update all timber management plans, including allowable harvest plans. The Forest Service estimated that all plans will have been updated by the end of calendar year 1973. We noted that annual allowable harvest plans (some of which had not been finalized) for several national forests showed allowable harvest levels for fiscal year 1973 and subsequent years substantially below levels for previous years. Forest Service records and our discussions with field officials indicated that the lower levels were largely attributable to acreage reductions in commercial forest land due to growing demands to use the land for recreation, wilderness, and other purposes.

#### SURVEY OBSERVATIONS

In our March 1973 letter to the Chief of the Forest Service we stated that the Forest Service could improve its planning for allowable harvests by (1) using more precise timber resource data in computing the allowable harvest, (2) comparing planned timber management assumptions with past accomplishments, and (3) obtaining consistency in classifying commercial forest land. These improvements are discussed in more detail below.

Need to use more precise timber resource data  
in computing allowable harvests

In computing allowable harvests, Forest Service field personnel generally used forest inventory data--such as the forest's physical characteristics, condition, capacity, and volume--developed from a statistical sampling process. The data was used to estimate the timber resources on commercial forest land within the area sampled and to determine and regulate the allowable harvest. In some instances, more precise inventory data than that developed statistically was available but resource managers had not used it when determining the allowable harvest. According to field officials, Forest Service policy was to rely primarily on the inventory data developed from the statistical sampling process, although more precise data may have been available from other sources.

At one national forest with 874,000 acres of commercial forest land, for example, statistical sampling data indicated that the forest's road network occupied about 44,000 acres while the forest's road inventory records showed that the road network occupied only about 12,000 acres. According to a forest official, the 44,000 acres were excluded from the commercial forest land base that was used to compute the forest's allowable harvest volume.

A forest official agreed that the inventory record figure--12,000 acres--was more precise but told us that the commercial forest land base had not been adjusted because it was Forest Service policy not to combine statistical sampling data with inventory record data. As a result, the computed allowable harvest volume was lower than it might have been because it was based on about 32,000 acres less than was actually available for commercial timber production.

Forest Service headquarters officials agreed that more precise timber resource data, if available, should be used in timber management planning. They stated that the Forest Service was developing revised criteria to improve timber inventory-sampling techniques, timber-stand mapping, accuracy standards, unit planning, and other factors which affect the timber management planning process.

Need to compare timber management assumptions  
with past accomplishments

The Forest Service needed to strengthen its procedures to require that timber management assumptions used in calculating the allowable harvest be compared with past field accomplishments.

Such comparisons would assist field officials in evaluating the reasonableness and soundness of the assumptions and also would provide a better basis to calculate and subsequently adjust allowable harvest estimates.

In the Pacific Northwest region, for example, the computed allowable harvests for most forests during the past 15 years had been based, in part, on the assumption that a 5-year period was needed to adequately replant cutover areas. At one national forest in the region, however, an analysis made for a purpose not directly related to allowable harvest computations showed that it took significantly longer than 5 years to adequately replant cutover areas and that, if the computations had recognized this, the forest's allowable harvest would have been reduced by more than 5 million board feet annually.

Officials of two forests in the region told us that the assumption had not been compared with actual accomplishments to determine its accuracy, and regional officials told us that the region did not have procedures requiring such comparisons.

Forest Service headquarters officials agreed that the Forest Service needed to strengthen its procedures for comparing plans with past field accomplishments to evaluate the reasonableness and soundness of timber management assumptions. According to the officials, such procedures were being considered for use in the timber subsystem of the Forest Service's Information for Management (INFORM) project. The first stage of this subsystem is scheduled to be implemented during July 1974.

Need to obtain consistency in classifying commercial forest land

The Forest Service Manual (FSM 2412.15) was amended in May 1972 to require that the commercial forest land used in determining the allowable harvest be classified as:

- Standard if crops of wood can be grown and harvested with adequate protection of other forest resources.
- Special if it is recognized in multiple-use plans as needing specially designed treatment of the timber resources to achieve landscape or other key resource objectives.

--Marginal if it does not qualify as standard or special land primarily because of excessive development costs, low product values, or resource protection constraints.

--Unregulated if it will not be organized for timber production under sustained-yield principles.

We noted significant differences in the field personnel's interpretations of these manual provisions. For example, officials of one national forest estimated in a tentative timber management plan that about 135,000 acres of commercial forest land in that forest should be classified as marginal because of fragile or adverse soil conditions. The tentative plan showed that present logging techniques could not be used to harvest these areas without excessively damaging the forest resources.

Officials of another national forest had not classified any land in their tentative timber management plan as marginal to reflect soil problems, although available information showed that about 70,000 acres of commercial forest land in that forest could not be harvested with present logging equipment without damaging forest resources. A forest official told us that officials classified the 70,000 acres as standard because they considered special logging systems, such as balloons and helicopters, to be present logging techniques.

Forest and regional officials agreed that the guidelines had been interpreted differently and indicated that more specific instructions would help to insure consistent interpretation among regions and forests and to assist them in classifying commercial forest land as standard or marginal.

Forest Service headquarters officials stated that additional field experience with the new manual provisions was needed to determine the significance of the problem of classifying commercial forest land. They said that they would contact regional offices to obtain any supplemental criteria developed on the matter and would distribute it to field locations which do not have supplemental criteria for classifying commercial forest land.

#### FOLLOWUP DISCUSSIONS WITH HEADQUARTERS OFFICIALS

In followup discussions with headquarters officials, we were informed that the following actions were taken or planned.

- The Forest Service plans to revise its manual early in 1974 to provide improved guidance to field offices for insuring the accuracy of resource data and for updating timber management plans to reflect changes in such data.
- Provisions were added to the Forest Service Manual in May 1972 to require, in all new timber management plans, comparisons of timber management assumptions with past accomplishments. The Forest Service expects that implementing the timber subsystem of its INFORM project will make detailed comparisons much easier.
- The Forest Service recognized the probability that, as it gained experience with national classification criteria, they might need to be improved. It held a meeting between its regions in December 1973 to determine problems related to implementing such criteria. A Forest Service official told us that it was pointed out at the meeting that some clarification was needed in the classification criteria to obtain uniform application by the regions.

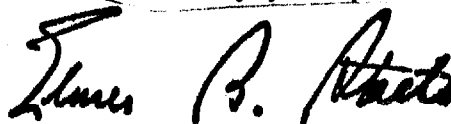
Also the Forest Service stated that the Pacific Northwest region had obtained public comments on a number of tentative timber management plans which would enable the region to attain needed consistency in final plans.

The Forest Service actions, when completed and implemented, should provide land managers with a better basis for determining and appropriately adjusting sustainable harvest levels.

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We do not plan to distribute this report further unless you agree or publicly announce its contents.

Sincerely yours,



Comptroller General  
of the United States