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*REPORT TO THE COMMITTEE ON
INTERIOR AND INSULAR AFFAIRS
UNITED STATES SENATE*

094925



*BY THE COMPTROLLER GENERAL
OF THE UNITED STATES*

Indian Natural Resources--
Opportunities For
Improved Management And
Increased Productivity
Part I: Forest Land,
Rangeland, And Cropland

Bureau of Indian Affairs
Department of the Interior

The management of Indian natural resources
has been hindered by

- limited long-term planning for resource development,
- lack of personnel for technical assistance and advice, and
- conflict of tribal or individual Indian desires with accepted resource management practices.

This report makes numerous recommendations to help overcome these problems and improve the management of natural resources to increase the benefits to Indian people and to assist in meeting the Nation's long-term needs for food and fiber.

RED-76-8

AUG. 18, 1975

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COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-114868

The Honorable Henry M. Jackson, Chairman
Committee on Interior and Insular Affairs
United States Senate

Dear Mr. Chairman:

This is our report on opportunities for the Department of the Interior to improve management and increase the productivity of forest land, rangeland, and cropland on Indian reservations. We made this review pursuant to your June 11, 1974, request, as modified by subsequent discussions with your office.

You asked us to review the Bureau of Indian Affairs' efforts to help Indians in developing their natural resources, to provide much-needed employment to Indians and help reduce our Nation's shortages of food and raw material. This report covers our review on 11 major Indian reservations of the three major renewable resources--timber, range, and cropland. Our review of energy-related resources--coal, oil, and gas--will be covered in a separate report.

We obtained Department comments and considered them in preparing this report. They are included as appendix II.

We invite your attention to the fact that this report contains recommendations to the Secretary of the Interior. Section 236 of the Legislative Reorganization Act of 1970 requires the head of a Federal agency to submit a written statement on actions taken on our recommendations to the House and Senate Committees on Government Operations not later than 60 days after the date of the report and to the House and Senate Committees on Appropriations with the agency's first request for appropriations made more than 60 days after the date of the report. We will be in touch with your office in the near future to arrange for the release of the report so that the requirements of section 236 can be set in motion.

The Congress recently established the American Indian Policy Review Commission to study national Indian policy. When released, a copy of the report will be given to the Commission.

Sincerely yours,

James B. Stast

Comptroller General
of the United States

*Indian Lands
Nat. Am.
Land manageg
Ren. nat res.
Econ. dev.*

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ABBREVIATIONS

ASCS	Agricultural Stabilization and Conservation Service
AUM	animal unit month
BR	Bureau of Reclamation
GAO	General Accounting Office
IMS	Irrigation Management Services
SCS	Soil Conservation Service

COMPTROLLER GENERAL'S REPORT
TO THE COMMITTEE ON
INTERIOR AND INSULAR AFFAIRS
UNITED STATES SENATE

INDIAN NATURAL RESOURCES--
OPPORTUNITIES FOR IMPROVED
MANAGEMENT AND INCREASED
PRODUCTIVITY
PART I: FOREST LAND,
RANGELAND, AND CROPLAND
Bureau of Indian Affairs
Department of the Interior

D I G E S T

Indian timber, range, and croplands are valuable resources that provide Indian tribes and individual Indians with considerable income and job opportunities.

--Timber receipts from 1969 to 1973 ranged between \$22.5 million and \$70 million.

--Ranching operations produced livestock products in 1973 valued at \$64.3 million; rangeland grazing permits produced \$5.7 million.

--Indian cropland produced farm products in 1973 valued at \$259 million and rental income of about \$20 million.

There are, however, opportunities to improve management of these resources. To increase the productivity of forest lands, the Bureau should work with the tribes to:

--Assess forest management opportunities, such as thinning and reforestation, and develop plans to eliminate the backlog of forest management work.

--Develop salvage plans and simplified sales procedures to harvest dead and dying timber.

--Determine the additional staff needed to harvest the allowable volume of timber and to perform needed forest management work, and inform the appropriate committees of the Congress of these needs.

--Periodically evaluate effectiveness of its efforts in increasing timber production and report the results to the Congress.

--Improve the financial controls over funds used for forest management projects. (See pp. 27 and 28.)

To improve the rangeland and its productivity, the Bureau and the tribes should reach agreement on long-term plans

that provide for:

- Range and soil inventories to determine current range capacities and a schedule for adjusting herd sizes to capacity.
- Grazing permit systems for limiting grazing to range capacity and for generating funds to maintain range improvements.
- Development and prudent use of improvements to increase range capacity.
- The amount of Federal and tribal funding needed to develop the improvements.
- Education programs to promote sound range management practices.

To encourage the implementation of these plans, the Bureau should request funding only for those range improvements that agree with the long-term range management plans. (See pp. 46 and 47.)

To improve management of Indian cropland, the Bureau should:

- Work with Indian tribes and the Bureau of Reclamation to plan and carry out irrigation management services on Indian irrigation projects. (See p. 52.)
- Strengthen farm lease procedures and terms. (See p. 53.)

Management of Indian natural resources has been hindered by:

- Limited Bureau and tribe planning on how resources will be developed on a long-term basis.
- Lack of personnel to provide tribes necessary technical assistance and advice.
- Conflict of tribal or individual Indian desires with accepted resource management practices. (See p. 5.)

The Department of the Interior and the Bureau of Indian Affairs agreed with GAO's findings and recommendations and outlined numerous planned actions. (See app. II.)

CHAPTER 1

INTRODUCTION

At the request of the Committee Chairman, we have reviewed the management of natural resources on selected Indian reservations. This report presents the results of our review of the three major renewable resources on Indian reservations--timber, range, and croplands. Our review included activities on 11 major reservations. (See scope, ch. 6.) The results of our review of the management of coal, oil, and gas resources will be covered in a separate report.

SIGNIFICANCE OF INDIAN NATURAL RESOURCES

The Indians' natural resources are located on over 200 reservations in 26 States and encompass 52.5 million acres. About 129 reservations have Indian populations of at least 200 and land of at least 1,000 acres.

Indian lands include:

- 5.3 million acres of commercial forest land, which is about 1 percent of the Nation's commercial forest land and includes about 38 billion board feet of timber, or 1-1/2 percent of the Nation's total.
- 44 million acres of rangeland, or about 5 percent of the Nation's total.
- About 2.7 million acres of cropland, or less than 1 percent of the Nation's total.

According to the 1970 census, about 827,000 Indians lived in the United States. In 1973 the Bureau of Indian Affairs, Department of the Interior, estimated that 543,000 Indians were living on or near reservations. The reservation resources provide considerable income and employment to tribes and individual Indians.

BASIC RESPONSIBILITIES AND OBJECTIVES FOR MANAGING INDIAN NATURAL RESOURCES

The Federal Government has, by congressional acts and subsequent judicial decisions, assumed an obligation to aid those Indians with whom it has established a special relationship. The Government, through the Bureau, provides many services to these people, primarily:

- Working with Indian people and other agencies to develop programs that will lead to Indian economic self-sufficiency.
- Advising Indian landowners how they can make the most of their resources.
- Exercising trust responsibility for Indian lands.

The basic objectives for managing timber and rangelands are specified in the Indian Reorganization Act of 1934 (25 U.S.C. 466) which states that:

"The Secretary of the Interior is directed to make rules and regulations for the operation and management of Indian forestry units on the principle of sustained-yield management, to restrict the number of livestock grazed on Indian range units to the estimated carrying capacity of such ranges, and to promulgate such other rules and regulations as may be necessary to protect the range from deterioration, to prevent soil erosion, to assure full utilization of the range, and like purposes."

In managing the Indian forest and rangeland, the Bureau has the overall objectives of (1) preserving the land in a perpetually productive state to insure continuous production of timber and forage, (2) developing the resources to provide income and employment for Indians, (3) regulating water runoff and minimizing soil erosion, and (4) preserving and developing other values, such as wildlife and recreation.

The basic authority to help Indians manage their cropland is provided for in several conservation and irrigation acts. The Bureau's overall objectives are to conserve, restore, and improve the land and help the Indians receive fair returns from using or renting their lands. In carrying out these objectives, the Bureau's activities include (1) providing for the construction, operation, and maintenance of irrigation projects, (2) giving technical assistance to Indian farmers, and (3) assisting Indian landowners in leasing their farmland for the highest economic return consistent with prudent management and conservation practices.

Within the Bureau, management of timber, range, and cropland is decentralized. Area directors and agency superintendents share responsibility for carrying out the Bureau's programs. Most of the personnel are located in the agency offices, which are usually on the Indian reservations. These people have the immediate responsibility for managing the natural resources. They receive technical support and policy guidance from the area offices and Bureau headquarters.

The land belongs to the Indian people. Therefore, rather than strictly imposing its resource management principles and requirements on the individual Indians and tribes, the Bureau strives to get voluntary acceptance of sound resource management through such means as education and technical assistance.

The importance of voluntary acceptance has been re-emphasized recently in the Bureau's self-determination policy. The Secretary of the Interior recently established a task force to develop a definition of Indian self-determination for the Bureau's programs and provide for its application in Federal agencies by May 1975. Although a definition had not been finalized at the time of our review, the policy of self-determination can be tentatively defined as a lessening of the Bureau's paternalism to the tribes and the operation of their programs. However, this new emphasis on self-determination in the management of Indian timber, range, and cropland must not ignore the trustee relationship that exists between the Bureau and the tribes in the management of natural resources. According to preliminary task force determinations, this relationship requires that any actions taken regarding the natural resources must have the mutual consent of the Bureau and the tribe.

CHAPTER 2

OPPORTUNITIES TO IMPROVE MANAGEMENT

OF NATURAL RESOURCES

Indian timber, range, and croplands are valuable resources that provide Indian tribes and individual Indians with considerable income and job opportunities. The annual receipts from timber harvested from 1969 to 1973 have ranged between \$22.5 million and \$70 million. Indian ranchers use about 90 percent of the rangeland. In 1973, Indian ranching operations accounted for livestock products valued at \$64.3 million. In addition, rangeland grazing permits resulted in revenue of about \$5.7 million. During 1973 Indian cropland produced farm products valued at \$259 million and about \$20 million of rental income. Major opportunities exist, however, to improve the management of these resources to increase the benefits to Indian people and to help meet the Nation's long-term needs for food and fiber.

POTENTIAL FOR INCREASING PRODUCTIVITY OF INDIAN NATURAL RESOURCES

Timber production could be improved by (1) increasing the timber harvest on Indian forest lands where the allowable harvest volume is not being achieved and (2) initiating or increasing certain forest management practices, including precommercial thinning and reforestation, commercial thinning, and harvesting of scattered dead and dying timber.

The condition and productivity of the Indian rangeland could be improved by (1) reducing overgrazing, (2) installing and enforcing grazing permit systems, (3) maintaining and effectively using range improvements, and (4) educating cattle owners to good range management practices.

The Bureau's assistance to Indians in managing their croplands could be improved by (1) planning and implementing irrigation management services to improve efficiency of water use on Indian irrigation projects and (2) developing lease procedures and terms to insure that Indians do not forego rental income for improvements made by renters and financed by Federal grants.

The management of Indian natural resources has been hindered by:

- Limited Bureau and tribe planning on how resources will be developed on a long-term basis. Some timber management planning has been done, but it has not included important intensive forest management practices that could increase the productivity of Indian forests. Planning for rangeland development and irrigation management on croplands has also been limited or nonexistent.
- Lack of personnel to give the tribes necessary technical assistance and advice. This has been a problem in both the timber and range programs.
- Conflict of tribal or individual Indian desires with accepted resource management practices. This has been more of a problem with rangeland than with timberland. When conflicts arise, the Bureau is placed in the rather awkward position of attempting to fulfill its legal trust responsibility and at the same time support the concept of Indian self-determination.

There are no simple or easy answers to resolving the conflict between the Bureau's trust responsibility and the concept of self-determination. The Bureau has two study groups working on aspects of this problem. In addition, the Congress, in January 1975, established the American Indian Policy Review Commission to:

- Study the legal history of the Federal Government's relationships with the Indians to determine the attributes of the unique relationship between the Government and tribes and the land and other resources they possess.
- Review the policies, practices, and structure of the Federal agencies charged with protecting Indian resources and providing services to Indians.
- Recommend to the Congress changes in existing laws, policies, and practices.

The Commission is expected to complete its work in 1977.

Detailed discussions and recommendations on the Bureau's management of Indian timber, range, and cropland resources are included in chapters 3, 4, and 5.

CHAPTER 3

MANAGEMENT OF INDIAN FOREST LAND

On many Indian reservations, timber is the mainstay of the economy and produces more jobs and income than any other resource or industry. Opportunities exist for accelerating the growth and harvest of timber on Indian forest lands. This increased production could make more jobs available to Indians and could increase tribal income. It could also help reduce projected national timber shortages.

SIZE AND IMPORTANCE OF INDIAN TIMBER RESOURCES

Indians own about 5 million acres of commercially forested lands on their reservations. The standing timber inventory of 38 billion board feet on these Indian forests is about 1-1/2 percent of the U.S. total. A comparison between the Indians' forest resource and that of Federal agencies and all forest land in the Nation as of 1970 and the harvest for that year is shown below.

	<u>Acres</u>	<u>Total standing volume</u>	<u>1970 harvest</u>
	(million)	(million board feet)	
Indian reservation lands	5.2	38,425	744
Forest Service and Bureau of Land Management lands	115.0	1,104,150	14,045
All U.S. lands	499.7	2,420,766	58,412

Most Indian commercial forest lands are located on 12 reservations. We visited three of these reservations: the Yakima, Colville, and Fort Apache. These three reservations have about one-third of the total Indian forest land and about one-half of the total standing timber inventory. In 1973, over one-third of the timber harvested on Indian lands was from these three reservations. Most of the timber is harvested on a selective-cut basis, with very little clear cutting. The following table provides total 1973 forest data for all reservations and specific data for the three reservations visited.

<u>Reservation</u>	<u>Acres</u>	Total standing <u>volume</u> (million board feet)	1973 <u>harvest</u>
Yakima	494,882	7,796.9	141.1
Colville	802,532	5,686.1	117.5
Fort Apache	<u>719,686</u>	<u>4,380.6</u>	<u>69.8</u>
	2,017,100	17,863.6	328.4
Other reser- vations	<u>3,244,392</u>	<u>20,067.9</u>	<u>589.2</u>
Total, all reservations	<u>5,261,492</u>	<u>37,931.5</u>	<u>917.6</u>

The harvest of Indian-owned timber provides significant revenue. In 1973 timber sales revenue totaled about \$70 million. For that year, timber sales revenue was \$10.7 million at the Yakima, \$10.9 million at the Colville, and \$1.9 million at the Fort Apache reservations.

Timber provides more income than any other resource or industry on the Yakima, Colville, and Fort Apache reservations and provides considerable employment. The following table shows the estimated staff-years of forest-related Indian employment on these three reservations during 1974.

<u>Employer</u>	<u>Reservation</u>		
	<u>Yakima</u>	<u>Colville</u>	<u>Fort Apache</u>
	—————(staff-years)—————		
Tribe	49	90	17
Bureau	37	31	15
Tribal-owned mills	-	-	180
Private mills and loggers	<u>70</u>	<u>132</u>	<u>85</u>
Total	<u>156</u>	<u>253</u>	<u>297</u>

FOREST MANAGEMENT OBJECTIVES

The Indian Reorganization Act of 1934 requires that Indian forests be managed for a sustained production of

timber. In managing the forests, the Bureau has the following objectives:

- Make the forest perpetually productive by providing effective protection and by applying sound forest management and economic principles to timber harvesting.
- Regulate the cut to insure continuous timber production.
- Develop the forests so the Indians may receive not only the value of the timber but also other possible benefits.
- Sell competitively the portion of the allowable harvest exceeding that being used by the Indians for their own purposes, such as in tribal-owned mills.
- Preserve the forests in their natural state when desirable.
- Regulate water runoff and minimize soil erosion.
- Preserve and develop grazing, wildlife, and other forest values.

To assist in meeting these forest management objectives, the Bureau is required to prepare a timber management plan for each major timbered reservation. The plan is to specify the quantity of timber to be harvested annually and the forest management techniques to be employed over the ensuing 10-year period. The plan is to be revised at 5- to 10-year intervals, with annual reviews during the interim.

The Bureau and the tribes finance the cost of managing Indian forest resources. Before fiscal year 1973, the Bureau deducted an administrative fee from Indian timber sales receipts to cover its costs in managing the forestry program. Beginning in fiscal year 1973, a policy change allowed the tribes to use the administrative fees for certain forest management practices on their lands. In fiscal year 1973, the Federal appropriation for the Bureau's forestry program was \$5.9 million and the tribes incurred costs or obligations of \$3.7 million under the administrative fee program.

PREDICTED TIMBER SHORTAGE

Demands for lumber and plywood are increasing more rapidly than softwood sawtimber supplies can be made available.

An October 1973 Forest Service report entitled "The Outlook for Timber in the United States" showed that, if the then current management levels of the Nation's forests were maintained and if timber product prices relative to competing products remained the same, softwood sawtimber shortages would start to occur during this decade and continue to increase into the next century. The study showed, for example, that U.S. demand for softwood sawtimber would exceed supplies by about 9 billion board feet in 1980, by about 15 billion board feet in 1990, and by about 18 billion board feet in 2000. For hardwood sawtimber, the report showed a surplus in 1980, a deficit of 300 million board feet in 1990, and a deficit of about 2 billion board feet in 2000.

Indian commercial forests contain predominantly softwood tree species, such as ponderosa pine and Douglas fir, and therefore could provide some of the needed softwood sawtimber.

OPPORTUNITIES FOR INCREASED PRODUCTION

Opportunities exist for accelerating timber production on Indian forest lands. These opportunities include:

- Increasing the volume of timber harvested to the level permitted under sustained yield.
- Improving the effectiveness of precommercial thinning and reforestation programs.
- Performing commercial thinning.
- Harvesting more dead and dying timber.

The Bureau is not taking advantage of these opportunities for a variety of reasons, but mainly:

- It has not established specific goals and action plans for identifying and accomplishing needed forest management work.
- It has not made any substantial effort to acquire the personnel and funds needed to fully manage the Indian forests.
- Tribes, in some cases, are hesitant to increase timber harvesting.

Actual harvest below allowable harvest level

The Bureau, to insure a sustained yield of timber on Indian lands, sets an allowable harvest--the volume of timber that can be cut each year. From 1969 through 1973, however, the annual volume of timber harvested on some reservations was consistently below the allowable harvest level.

Each year about 110 million board feet of harvestable timber is left in the forests on the 12 major timbered reservations alone. This represents about \$5 million which could have been earned by Indians if the full allowable harvest were sold. Also, this uncut harvestable timber is enough to construct 11,000 single-family homes. The following table shows the harvest shortfall and estimated revenue losses.

<u>Reservation</u>	<u>1969-73 average</u>			<u>Revenue losses</u>
	<u>Allowable harvest</u>	<u>Actual harvest</u>	<u>Harvest shortfall</u>	
	(million board feet)			
Yakima	157	143.9	13.1	\$ 701,990
Colville	120	111.5	8.5	497,335
Fort Apache	<u>92</u>	<u>67.9</u>	<u>24.1</u>	<u>522,414</u>
Total	<u>369</u>	<u>323.3</u>	<u>45.7</u>	<u>\$1,721,739</u>
The 12 major timbered reservations	<u>896</u>	<u>785.4</u>	<u>110.2</u>	<u>\$5,414,897</u>

Since the value of timber has increased considerably since 1969 and the allowable harvest has recently been substantially increased on one reservation, future revenue losses will probably be much greater than those shown above.

Yakima Reservation

The volume of timber harvested on the Yakima reservation has consistently been less than the allowable harvest level. To date, approximately 52 percent of the forest area has been partially cut over and the balance is virgin. Much of the virgin timber is overmature, slow growing, and needs to be harvested to allow young, fast-growing stands to be established.

The following table compares the allowable harvest level and average annual actual harvest since timber harvesting was started in 1943.

<u>Years</u>	<u>Allowable harvest level</u>	<u>Average annual volume harvested</u>
	(million board feet)	
1943-52	42	13
1953-61	70	67
1962-65	136	106
1966-73	157	146
1974	186	127

According to the Bureau forest manager at the reservation, the principal reason for undercutting is the insufficient number of forestry personnel. He stated that, to harvest a greater volume of timber, additional trained forestry personnel with the capability to prepare and administer timber sales are needed.

This lack of forestry staff has concerned tribal members. Recently tribal officials went to Bureau headquarters to request additional staff for the Yakima agency. The chairman of the tribal timber committee said that Bureau officials told the tribal members that no additional forestry personnel could be provided due to personnel ceilings and fund restrictions.

Colville Reservation

As on the Yakima reservation, the volume of timber harvested on the Colville reservation is less than the allowable harvest level. The allowable harvest level is currently 120 million board feet based on a timber management plan prepared in 1961. From 1969 through 1973, the annual volume of timber harvested averaged about 8 million board feet less than the allowable level. The Bureau forest manager at the reservation stated that the lack of forestry personnel to prepare and administer timber sales has been the limiting factor in achieving the full allowable harvest.

Recent timber inventory data and a new allowable harvest computation indicate that the allowable harvest level should be increased 16 million board feet. If the new computed volume

is approved, the allowable harvest will be about 136 million board feet annually. Tribal officials told us that they are, however, hesitant about having additional volumes harvested because they believe it may result in the removal of too many of the reservation's larger trees. They said that from an aesthetic standpoint, they do not want a forest with smaller-sized trees.

Fort Apache Reservation

The annual allowable harvest on the Fort Apache reservation is about 92 million board feet. The actual harvest has, however, averaged only about 68 million board feet a year from 1969 through 1973. According to Bureau forestry officials, the full allowable harvest has not been cut because the tribe decided to process the timber in its own mills and because, due to current economic conditions, the market for wood products is not strong.

In 1970 the tribe stopped selling timber to private sawmills because it wanted to process the timber in its own sawmill. At that time, the tribe owned one sawmill that had a capacity of only about 60 million board feet--32 million board feet less than the allowable harvest. The actual harvest was, therefore, limited by the mill capacity.

In 1973 the tribe began operating two additional sawmills, raising the processing capability above the allowable harvest level. The actual harvest has not yet, however, approached the allowable harvest. This is occurring, according to the Bureau forest manager, because of current poor market conditions for wood products. He doubted that his forestry staff would be large enough to harvest the full allowable volume when market demand improves.

Effectiveness of the precommercial thinning and reforestation programs could be improved

Reforestation and precommercial thinning are intensive forest management practices which result in additional timber being available for future harvest. Reforestation is generally done by planting seedlings to replace trees on lands deforested by timber harvesting, fire, insects, disease, and other causes. (Photograph 1 shows an area in 1975 that should have been reforested in 1964.) Precommercial thinning involves cutting a number of trees on overstocked land to increase the growth rate of the remaining trees. The trees that are thinned are too small to be merchantable and are, therefore, left in the woods. (See photographs 2, 3, and 4.)

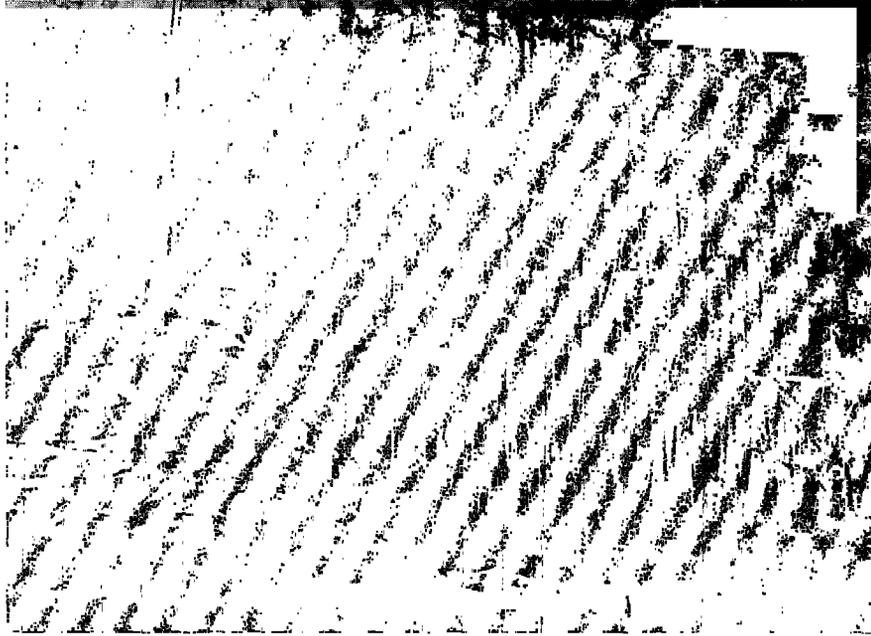


1. Portion of a large area on the Fort Apache reservation that was deforested by a forest fire in 1964. (GAO Photograph)

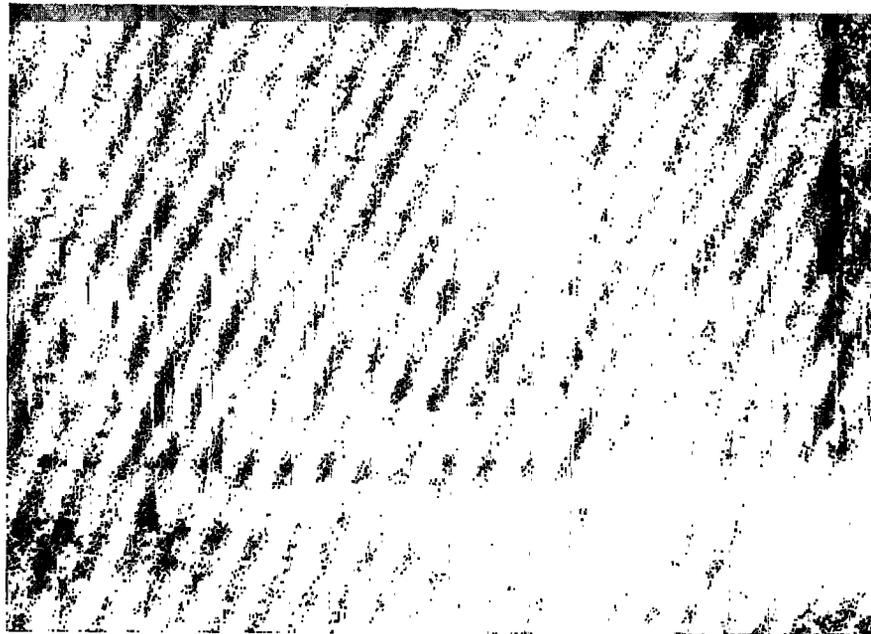
The Bureau has not effectively reduced the backlog of reforestation and precommercial thinning work. In 1973, for example, thinning accomplishments for all reservations equaled only about 3 percent of the total amount of precommercial thinning needed (backlog) and the reforestation accomplishments equaled only about 4 percent of the reforestation needs. The following table shows the actual accomplishments in comparison with the backlog of needed work for the three reservations we visited and for all reservations.

Precommercial Thinning and Reforestation
Backlog and Accomplishments--1973

	<u>Thinning</u>		<u>Reforestation</u>	
	<u>1973</u>		<u>1973</u>	
	<u>accomplishments</u>	<u>Backlog</u>	<u>accomplishments</u>	<u>Backlog</u>
	(acres)			
Yakima	1,707	4,735	128	1,815
Colville	1,200	115,098	100	12,755
Fort Apache	<u>295</u>	<u>107,000</u>	<u>167</u>	<u>13,220</u>
Total	<u>3,202</u>	<u>226,833</u>	<u>395</u>	<u>27,790</u>
All reservations	<u>22,190</u>	<u>749,681</u>	<u>5,543</u>	<u>132,651</u>

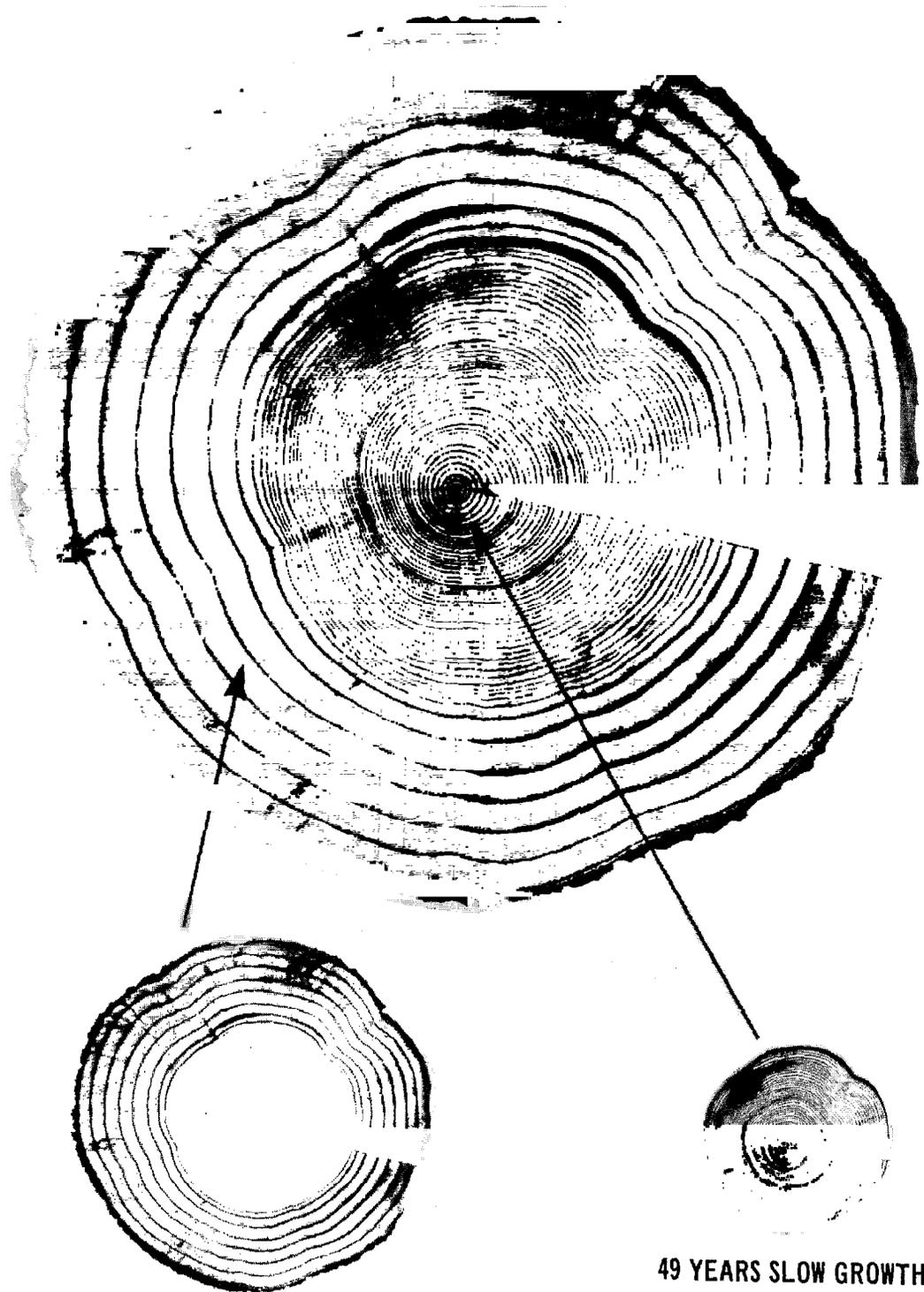


2. Precommercial thinning is needed to increase the growth rate of this group of trees on the Yakima reservation.



3. Portion of the Colville forest that has been precommercially thinned.

(GAO Photographs)



**7 YEARS FAST GROWTH FOLLOWING
TIMBER STAND IMPROVEMENT**

49 YEARS SLOW GROWTH

4. Cross section of tree showing the increase in growth that can be attained from thinning an overstocked stand.

(Photograph furnished by the Forest Service)

Three major factors limited the effectiveness of the Bureau's intensive forest management work:

- Insufficient inventory data on the location, size, and condition of areas needing intensive management work.
- No plans and goals for reducing the backlog of intensive management work over a reasonable time.
- Inadequate guidelines and financial controls over the expenditure of funds available for intensive management work.

Insufficient inventory data

The size of the Bureau's thinning and reforestation backlogs is based not on forest land inventory data but on rough estimates of how many acres need this type of work. The backlog estimates are not regularly updated to include new areas that have become overstocked or understocked.

On the Colville reservation, for example, an estimated 123,000 acres of land needed precommercial thinning in 1962. This backlog acreage was based on the estimator's personal observations and experience. The Bureau has deducted annual thinning accomplishments from the backlog acreage but has not added new acreage to include areas that have become overstocked since the estimate was made. According to the Colville forest manager, the precommercial thinning backlog is probably significantly understated.

A similar situation exists on the Yakima reservation. At the end of 1973, a precommercial thinning backlog of only 4,735 acres was reported. For that same year, 1,707 acres of precommercial thinning were reported as being accomplished; this indicated that the backlog would probably be eliminated in about 3 years. According to the forest manager, the backlog currently reported is based on an estimate made in 1964 without any inventory data and has not been updated as new areas have become overstocked. The forest manager said that the backlog figure was inaccurate and considerably more acreage should be included. He said that the magnitude of the precommercial thinning needs was unknown but he estimated that at least 20,000 acres need to be thinned.

Lack of plans and goals

In April 1973, during fiscal year 1974 hearings before a subcommittee of the House Committee on Appropriations,

members of the subcommittee urged the Bureau to come forward with a specific program, such as a 5- to 10-year program for reducing the backlog of intensive management work. The Bureau has not established annual and long-term goals for performing intensive management work, nor have plans been prepared on how to eliminate the work backlog.

Bureau headquarters officials said that a well-planned program had not been developed because the Bureau does not have sufficient resources to devote to such an effort and still maintain current harvest levels. Bureau forest managers stated that planning for intensive management work has been minimal, primarily because of the low funding, poor inventory to work from, and higher priority placed on harvesting timber. They said that, because most of the forestry personnel are needed for preparing and administering timber sales, little effort can be directed toward planning intensive management work.

Inadequate financial advice and controls

Special funds have been available for intensive forest management work since July 1972. At that time, the Assistant Secretary of the Interior, Public Land Management, authorized the Bureau to pay for timber management work, performed or authorized by tribes, up to a maximum of 10 percent of the revenue generated from the sale of tribal timber. Previously an administrative fee of up to 10 percent of the timber sales revenue was deducted and paid into the Treasury as miscellaneous receipts. Procedures were not, however, established in 1972 for reviewing how the funds were being spent, and as a result the funds have not always been used to improve the management of Indian forest lands. A requirement that the funds be obligated during the same year that timber sales receipts are earned may have also contributed to the inefficient use of the funds.

The new policy substantially increased the amount of funds available for thinning and reforestation, especially on those reservations having high timber sales revenue. For example, in the fiscal year preceding the policy change, \$1,307 and \$3,890, respectively, were spent for intensive management work on the Yakima and Colville reservations. As a result of the policy change, over \$1 million in 10-percent funds were available for intensive management work on each of these reservations in fiscal year 1974.

At the time he approved the policy change, the Assistant Secretary stated that the new policy was intended to provide

needed increases in funds for the forestry program which the Department had been unable to obtain through the normal budgetary processes. In response to the policy change, the Bureau established general guidelines for spending the 10-percent funds, which recommended the funding of the following forestry activities:

- Intensive forest management practices, such as thinning and reforestation.
- Timber sale administration
- Fire presuppression.
- Modernized forest management inventories and planning.

The guidelines were, however, open ended and allowed the funds to be used for any other necessary expenses.

Procedures were not established for systematically reviewing how the funds were being used and we found that they were not always being effectively used. On the Colville reservation, for example, the Bureau reported that about \$2 million was spent for salaries, supplies, and equipment for intensive forest management work in fiscal years 1973 and 1974. On the basis of an estimate by a Bureau forestry official that precommercial thinning costs \$50 an acre, this money would have thinned 40,000 acres. During the 2-year period, only 3,000 acres were thinned and almost no planting was done.

In contrast, the Bureau reported that about \$168,000 was spent for intensive management work on the Yakima reservation during fiscal years 1973 and 1974. A Bureau official said that 2,414 acres of thinning and 219 acres of planting were accomplished with these funds. Most of the additional 10-percent funds at the Yakima reservation were reported as being spent for timber sale administration and fire protection.

Examination of Bureau and tribal records and discussions with Bureau and tribal officials at the Colville reservation revealed that expenditures were made that have little or no impact on improving the management of the reservation's forest lands. Such expenditures during 15 months of fiscal years 1973 and 1974 amounted to about \$386,000 and included such items as:

- \$25,926 for a loader tractor. This equipment is being used at a tribally owned and operated plant where fenceposts are manufactured.

- \$33,165 for a combination truck, trailer, and crawler tractor. The Bureau's Branch of Land Operations is using this equipment to develop springs on range and forest lands for watering cattle.
- \$53,567 for a computer and parts. The computer is used for tribal business and as a training tool for teaching tribal members how to operate computers.
- \$8,000 and \$1,350 for a metal building and shag-carpeting, respectively. The building is being used for tribal offices.
- \$39,270 for payment of the balance due on a road construction vehicle costing \$73,061. The tribe acquired the vehicle to train Indian heavy equipment operators under a Bureau-funded training contract project. The vehicle was used for a short time in 1973 for training and has not been used since.

Another factor that has affected expenditures made from the 10-percent funds is the Department's requirement that the funds be obligated during the same year the timber sales receipts are earned. Some Bureau and tribal officials have criticized this requirement because the exact total of timber sales receipts is not known until after the year has ended. Consequently, some tribes have failed to obligate the full 10 percent of timber sales receipts. For example, at the end of fiscal year 1974, \$123,309 went to the Treasury because the Yakima tribe did not know that the amount of the 10-percent funds available would be as high as \$1.1 million until after the year ended. A tribal official said that, because many obligations have to be made in a short time near the end of the year, the tribe does not have the time to plan for the most effective use of the money.

Recently a Bureau task force studied the policies for using the 10-percent funds and recommended that the Bureau allow the tribes 2 years to obligate the funds. The Bureau still is considering this recommendation.

Commercial thinning not being performed

In contrast to precommercial thinning of trees that are too small to have merchantable value, some Indian forest land is overstocked with young trees that are large enough to be sold and processed into wood products.



5. A timber stand on the Yakima reservation that is overstocked with trees large enough for commercial thinning. (GAO Photograph)

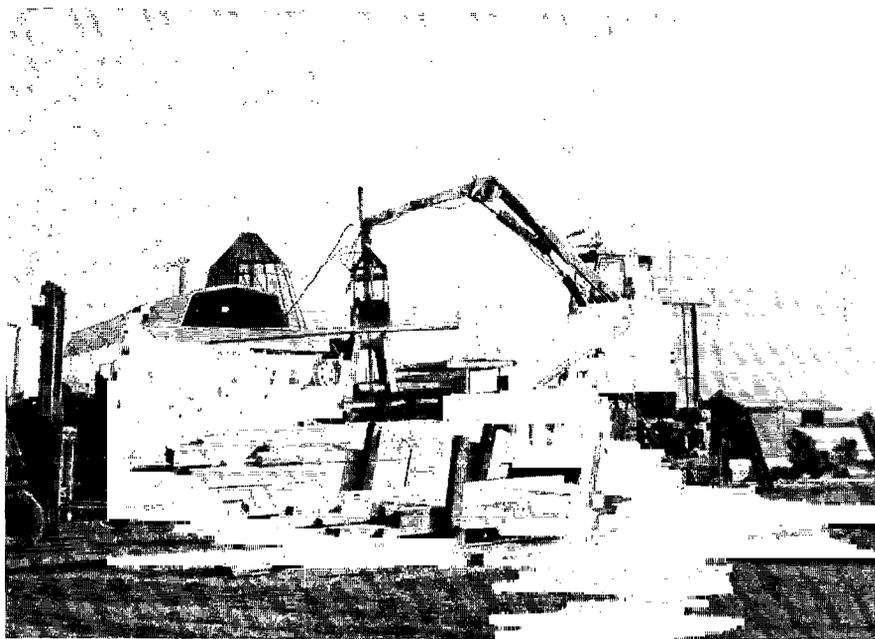
Through commercial thinning sales, these trees can be removed to improve the growth rates of the remaining trees. Although large areas exist where commercial thinning could be done, the Bureau has not performed this type of work. On the three reservations we visited, the Bureau had not determined the extent of commercial thinning opportunities nor had the Bureau developed plans and goals for performing commercial thinning.

On the Yakima reservation, for example, the Bureau had not determined how many acres of forest land needed commercial thinning. The Bureau forest manager, however, stated that a 100,000-acre area on the reservation had many acres needing commercial thinning. An insect epidemic near the end of the last century destroyed much of the original timber stand, and now dense, overstocked, stagnated stands of pole and small sawtimber-sized trees cover most of the area. No commercial thinning has been done, however, and none is planned because, according to the Bureau forest manager, the number of forestry personnel is not adequate to prepare and administer commercial thinning sales as well as the regular timber sales.

Similar commercial thinning opportunities exist on the Colville and Fort Apache reservations. On the Colville reservation, the Bureau forest manager said that, in addition

to a shortage of staff, some of the areas that need commercial thinning do not have roads. He said that the value of the trees that would be removed from commercial thinning would not be sufficient to pay for the full cost of building the needed roads into the area. The manager said that Federal funds would be needed to help pay the cost of building the roads if a commercial thinning program were started in these areas.

To evaluate the feasibility of commercial thinning, we contacted a representative of a large private timber company that owns about 260,000 acres of commercial forest land in central Washington. The company representatives said that about 2,000 acres of its land is commercially thinned each year and a portable small log sawmill has been built to process the logs. The representative said that, in addition to the increased timber growth resulting from the commercial thinning, the company is making a profit from operating the small log sawmill. The representative said that the company wants to purchase commercially thinned logs from both the Yakima and Colville reservations. By locating a small log sawmill close to a thinning operation, transportation costs



6. Portable, small log sawmill that is used for processing logs removed from commercial thinning sales on private forest lands. (GAO Photograph)

are reduced and commercial thinning becomes more profitable-- especially for thinning areas that are close to existing access roads.

More dead and dying
timber could be harvested

Each year insects, fire, wind, and other elements kill or damage considerable volumes of timber on Indian forest lands. (See photographs 7 and 8.) On the Colville reservation, 47 million board feet of timber, an amount equal to 39 percent of the annual allowable harvest, dies each year. On the Yakima reservation, the mortality averages 12 million board feet annually. The Bureau has not established a program for systematically harvesting this timber and, therefore, a large volume is not harvested and deteriorates to the point where it can no longer be used for lumber and plywood.

A systematic program for salvaging dead and dying timber on all accessible forest acres has not been established on the Colville and Yakima reservations. Goals and plans have not been established for the amount of dead and dying timber to be salvaged each year.

Bureau forest managers said they do not have sufficient staff to conduct both salvage and regular live timber sales. They, therefore, concentrate their available staff on live timber sales because a lower return is expected from salvage sales. Under existing procedures, additional time is required to prepare and administer salvage sales due to the scattering and low volume per acre of dead and dying timber. The Bureau's forestry manual does not tell how sale preparation and administration procedures could be shortened for salvage sales to make the return more comparable to that of live timber sales.

At the Fort Apache reservation, the Bureau is developing a program for the entire forest area. The dead and dying timber will be sold to the tribally owned mills. An estimated 25 million board feet of scattered dead and dying timber will be harvested over the 5-year life of the contract. The cutting of this timber is expected to start during 1975.

The forest manager at the Fort Apache reservation said that he will be able to make this salvage sale because he currently has personnel available to do the necessary sale preparation and administration work. He said that the reservation's annual timber harvest has decreased since the tribe decided to process the entire harvest in its own



7. Defoliated dead trees on the Colville reservation



8. Defoliated dead tree on the Fort Apache reservation.

(GAO Photographs)

sawmills. Likewise, this tribal decision has enabled the Bureau to eliminate some sale administration procedures normally used when selling timber to private companies or individuals. According to the forest manager, the combined changes have made some of his forestry staff available for salvage sales that would normally be needed for administering the regular live timber sales.

The U.S. Forest Service is currently implementing recommendations made in a prior GAO report 1/ regarding the establishment of a systematic salvage program on its national forests. This program is to include plans for salvaging the maximum feasible volume of dead and dying timber. It also will include simplified sale preparation and contract administration procedures for lowering the cost of and reducing the time required for salvage timber sales.

Need for additional forestry staff

Bureau forest managers stated that the lack of forestry staff has been the primary obstacle encountered in trying to (1) meet the allowable harvest level, (2) conduct an intensive forest management program, (3) perform commercial thinning, and (4) harvest additional volumes of dead and dying timber.

The Yakima agency and Portland area forestry staffs recently completed analyses of forestry staffing needs for the Yakima reservation. The analyses indicated that an additional 26 Bureau and 9 tribal employees are needed to adequately administer the forestry program on the Yakima reservation and fully meet the trust responsibility to the tribe. According to the analysis, the additional Bureau staff would annually cost about \$300,000 but would provide an increase in timber income to the Indian owners of \$4.2 million.

We compared the size of the Bureau forestry staff at the Yakima reservation with that of a U.S. Forest Service office. Although we did not evaluate the adequacy of the Forest Service's operations, the comparison appeared to confirm Bureau officials' statements that they do not have a forestry staff large enough to fully manage the Indian forest resource.

The Wenatchee National Forest is adjacent to the Yakima reservation and has similar forest conditions. It has an

1/"More Useable Dead or Damaged Trees Should Be Salvaged to Help Meet Timber Demand" (B-125053, Oct. 5, 1973).

allowable harvest volume of 177 million board feet compared with the Yakima reservation's 186 million board feet allowable harvest. The Wenatchee National Forest has a staff of 104 employees actively engaged in timber harvesting or intensive forest management activities. Many employees, such as district rangers and engineers involved in the design and construction of roads, also help accomplish these activities, but for comparison, we did not count them.

Of the 104 employees, 55 are full time and permanent and 49 are part time. Of the part-time staff, 20 are permanent and work about 11 months a year. The balance of the part-time staff (29 employees) work about 3 months a year.

The Yakima reservation has a forestry staff of 43 employees harvesting timber or managing intensive forest activities. Of this total, 39 are full-time, permanent employees and 4 are temporary.

When the size of the forestry staff is compared with the allowable harvest volume, the Wenatchee National Forest has a considerably larger staff. According to our analysis, for a million board feet of allowable harvest volume, the Wenatchee National Forest has about twice the staff available as does the Yakima reservation.

With a larger forestry staff, the Wenatchee National Forest has been able to harvest a larger volume of timber and has accomplished more intensive forest management work, which increases the volume of timber available for future harvesting. From 1969 through 1973, the Wenatchee National Forest's annual harvest averaged 180 million board feet. For the same period, the Yakima reservation harvest averaged 144 million board feet. During a similar 5-year period, 1/ the Wenatchee National Forest accomplished about the same number of acres of precommercial thinning but did over 20 times as many acres of reforestation. The Wenatchee National Forest was also able to establish commercial thinning programs on some of its districts, but the Yakima reservation has not established such a program. Currently, the Wenatchee National Forest has two commercial thinning sales in progress. The following table compares the forest management activity on the Wenatchee National Forest and the Yakima reservation.

1/The Wenatchee National Forest reports its precommercial thinning and reforestation accomplishments on a fiscal year basis; the Yakima reservation reports on a calendar year basis.

	<u>Wenatchee National Forest</u>	<u>Yakima Reservation</u>
Average annual timber harvest, 1969-73	180 million board feet	144 million board feet
Precommercial thinning (5-year average)	1,615 acres per year	1,720 acres per year
Reforestation (5-year average)	2,757 acres per year	138 acres per year
Commercial thinning	Two sales in progress 4.2 million board feet	None

CONCLUSIONS

Because of the opportunities for increasing Indian employment and income and for reducing the Nation's predicted, long-term shortage of softwood sawtimber, the Bureau should make strong efforts to accelerate timber production on Indian forest land. Accelerating production will require improved work planning, better financial controls, simplified timber sales procedures, and additional staffing at some reservations.

To better direct its efforts toward management opportunities that will result in the best timber growth, the Bureau needs to improve its planning of precommercial thinning and reforestation work and to establish plans for commercial thinning. Improved planning requires inventory data on the location, size, and condition of areas needing thinning or reforestation. This data should provide the basis for identifying the best management opportunities. Long-range plans should be established for eliminating the backlog of needed work over a reasonable time, with emphasis on accomplishing the best opportunities first.

Considering the importance of improving the management of Indian forest lands, financial controls should be established to insure that the use of 10-percent funds be limited to those activities that contribute to better management. Guidelines should not be open ended; they should limit the use of the funds to specific forest management activities. Review procedures are needed to insure that the funds are being used in accordance with the guidelines.

Since the total amount of 10-percent funds is not known until after the period for obligating the funds has ended,

the tribes do not have sufficient time to plan for the effective use of all the funds. A Bureau task force has recommended that the tribes be allowed a longer period in which to obligate 10-percent funds. We agree, and therefore are not making a recommendation at this time, pending disposition of the task force's recommendation.

The Bureau should provide for the salvage of additional volume of dead and dying timber on Indian lands. To do this, it needs to develop continuous salvage plans and use timber sales preparation and administration procedures especially tailored for the prompt salvage of scattered timber. Improved planning and modified sales procedures should reduce the manpower needed for a salvage sale. The Forest Service is establishing a systematic salvage program on its national forests to increase its harvest of dead and dying timber. Consultation with the Forest Service should prove to be of value to the Bureau in improving its salvage program.

Cutting less than the allowable harvest volume is not in harmony with the Bureau's forest management objective of sustained yield. The Bureau objective states that the allowable cut will be both a limitation on and an objective for the timber area to be treated. Bureau officials said that the primary reason for undercutting is the lack of forestry personnel to prepare and administer timber sales. The Bureau also cited this reason for not developing programs, such as commercial thinning, that would increase timber growth. Our staff analysis at a reservation showed that the Bureau was understaffed in comparison with a nearby national forest. An increase in staffing may therefore be needed if Indian forests are to be more fully managed for increased timber production.

The Bureau should obtain, evaluate, and report to the Congress appropriate information on its success in accelerating timber production. Such information should give the Congress an improved basis on which to review the Bureau's forestry program accomplishments, to evaluate the effectiveness of current forest policy, and to assess Bureau forestry personnel and funding needs.

RECOMMENDATIONS TO THE SECRETARY OF THE INTERIOR

To increase timber production on Indian forest land, we recommend that the Secretary of the Interior direct the Bureau of Indian Affairs to work with the tribes to:

- Assess the viability of such forest management opportunities as precommercial thinning, commercial thinning, and reforestation to identify the best opportunities.
- Develop long-range work plans for eliminating the backlog of needed forest management work over a reasonable time, with emphasis on the best opportunities first.
- Develop guidelines that limit the use of 10-percent funds to specific forest management activities and establish review procedures to insure the funds are used in accordance with the guidelines.
- Develop salvage plans and use simplified timber sale preparation and administration procedures tailored especially for harvesting dead and dying timber.
- Determine the additional staff needed to harvest the allowable volume of timber and to perform needed forest management work and inform the appropriate committees of the Congress of these needs.
- Periodically evaluate the effectiveness of its efforts in increasing timber production and report the results to the Congress.

AGENCY COMMENTS AND OUR EVALUATION

The Bureau and the Department agreed that the level of effort needed to meet the objectives of sustained yield and to achieve an allowable cut should be determined. They said a study is now underway on an agency-by-agency basis to do just that. The Congress will be notified of the results.

With respect to our specific recommendations, the Bureau said:

- It agrees that (1) the viability of forest management techniques should be assessed, (2) long-range plans for eliminating the backlog of needed forest management work should be developed, (3) salvage plans for harvesting dead and dying timber are needed, and (4) these actions will be accomplished if adequate resources can be made available.

--It believes that (1) existing guidelines for use of the 10-percent funds are basically sound, (2) the examples of questionable use of such funds were caused by inadequately administering and applying guidelines, and (3) area and agency offices will be directed to adhere to the guidelines in the future.

--A study is now in process to determine additional staffing needs. The appropriate congressional committees will be so informed, but there is no commitment to seek additional Federal appropriations.

--It agrees with periodically evaluating the effectiveness of its efforts to increase timber production and will report the results in its budget justifications.

If the actions planned are properly implemented, the Bureau's management of Indian forest land should be improved.

CHAPTER 4

MANAGEMENT OF INDIAN RANGELAND

The rangeland and livestock operations on many reservations are an important part of the economy and provide considerable employment and income. Opportunities exist to improve the management of Indian rangelands to (1) better maintain and renew the range resources and (2) increase the livestock production. This increased production could make more jobs and income available to Indians and help meet the Nation's food needs.

SIZE AND IMPORTANCE OF INDIAN RANGELAND RESOURCES

Approximately 44 million acres of rangeland on reservations in the United States are used for grazing domestic livestock and big game animals. This is about 5 percent of the 889 million acres of pasture and rangeland in the Nation. Most Indian rangelands are located in the western States, with about 60 percent in Arizona and New Mexico.

Indian ranchers use a majority of the rangeland, about 90 percent. In 1973, 17,910 Indian ranching operations accounted for livestock products valued at \$64.3 million. The remainder of the rangeland was used by 779 non-Indian ranchers who provided livestock products valued at \$33.9 million.

The following Indian employment and income were provided by cattle operations on the Papago and Hualapai reservations during calendar year 1973.

	<u>Papago Reservation</u>	<u>Hualapai Reservation</u>
Cattle owners	840	78
Employees of tribal enterprises, other Indian ranchers, or the Bureau (note a)	51	32
Gross income from cattle operations	\$1,353,000	\$279,000
Income earned from grazing fees	-	\$ 12,281

a/Some double counting occurs in these figures because most employees are also cattle owners.

RANGELAND MANAGEMENT OBJECTIVES

The Bureau has trust responsibility for the management and protection of rangeland resources. The Indian Reorganization Act of 1934 directs the Secretary of the Interior to restrict the number of livestock grazed on Indian range units to the units' estimated carrying capacity and to issue rules and regulations as may be necessary to protect the range from deterioration and to insure its full use.

The Secretary has established the following objectives to fulfill these responsibilities.

- Preserve, through proper grazing management, the land, water, forest, forage, wildlife, and recreational values on the reservations and improve and build up these resources where they have deteriorated.
- Promote use of the range resource by Indians to enable them to earn a living, in whole or in part, through the grazing of their own livestock.
- Provide for such administration of grazing privileges as will yield the highest return consistent with sustained-yield land management principles and the fulfillment of the rights and objectives of tribal governing bodies and individual land owners.

OPPORTUNITIES TO INCREASE RANGELAND PRODUCTION

An estimated 13 million acres, or 30 percent, of Indian rangeland are not being properly managed and are in poor condition because (1) the range has been overgrazed, (2) range improvements have not been effectively used or maintained, and (3) limited use has been made of training and education programs. These problems have existed on some reservations for years. Short-term, stopgap measures have been taken to relieve the situation but the long-term problems still remain. An important factor hindering the effective management of Indian rangelands on some reservations is the conflict of tribal or individual Indian desires with accepted range management practices.

The Bureau estimates that, if prudent range management practices were used and necessary range improvements made, the grazing capacity of Indian rangelands would increase by 50 percent. Detailed studies were not available showing the impact this increased capacity would have on beef production. On the basis of discussions with range conservationists, agriculture professors, and extension service

officials, we were able to roughly estimate the beef production potential for the Papago and Hualapai reservations. With optimum range development and proper range management, Papago beef production could be about 2.6 million pounds a year, more than double its 1973 production of about 1.1 million pounds. Similarly, annual production on the Hualapai reservation could be 1.2 million pounds, up from 0.3 million pounds in 1973.

We believe the Bureau and the tribes must develop long-term range management plans to realize the potential benefits of a renewed, high-producing range. These plans should provide for (1) range and soil inventories to determine current range capacity, (2) timetables for adjusting herd size to capacity, (3) grazing permit systems, (4) development and prudent use of range improvements to raise the carrying capacity, and (5) education programs to promote good range management practices.

Overgrazing of Indian rangeland

Severe overgrazing deteriorates the quality of the land and reduces its capacity to provide forage for livestock. Range condition is expressed by comparing the present amount and kind of forage with the desirable forage the range is capable of producing.

- Excellent condition means the range is producing 76 to 100 percent of the desirable forage. The ground is usually covered with mulch, rain soaks in rapidly, and there is little or no erosion.
- Good condition means the range is producing 51 to 75 percent of the desirable forage. In this condition, about one-fourth to one-half of the more productive plants have been replaced by less productive plants.
- Fair condition means the range is producing only 26 to 50 percent of the desirable forage. Less desirable and productive plants dominate the forage production.
- Poor condition means the range is producing only 0 to 25 percent of the desirable forage. Annual grasses and weeds are abundant, and undesirable perennial weeds and shrubs are common. The soil is poorly protected, and severe water and wind erosion is usually present.

About one-third of all Indian rangeland is in excellent or good condition. The rest is in fair or poor condition. Range conditions in 1973 for the seven reservations included in our review and for all Indian rangeland follow.

<u>Reservation</u>	<u>Condition of rangeland</u>			
	<u>Excellent</u>	<u>Good</u>	<u>Fair</u>	<u>Poor</u>
	—————(percent)—————			
Papago	0	1	33	66
Ute Mountain	6	26	42	26
Northern Cheyenne	85	5	8	2
Hualapai	21	48	25	6
Fort Belknap	16	64	18	2
Jicarilla	9	63	25	3
Southern Ute	13	49	34	4
All reservations	13	24	33	30

Bureau regulations require the agency superintendents to use the best available technical data to establish range carrying capacity. They are to make full use of soil-range inventories and surveys when establishing or adjusting the proper number of cattle to be grazed on a parcel of land. A system of grazing permits issued by the Bureau, or by the tribes with Bureau approval, then provides the mechanism to limit grazing to the range capacity.

When followed, these methods allow (1) the rangeland to yield the highest return consistent with sustained-yield land management and (2) the improvement or buildup of deteriorated rangeland. These methods are not always followed, and overgrazing continues on some reservations because of Indian cultures and traditions, tribal conflicts, and lack of enforceable permit systems.

The following table shows the status of rangeland and grazing permit systems for selected reservations.

Status of Rangeland and Permit Systems
on Selected Reservations

<u>Reservation</u>	<u>Overgrazed</u>	<u>Permit system</u>
Papago	Yes	No
Ute Mountain	Yes	No
Northern Cheyenne	Yes	Yes

Hualapai (note a)	No	Yes
Fort Belknap	No	Yes
Jicarilla	No	Yes
Southern Ute	No	Yes

a/Although the Hualapai Reservation as a whole is undergrazed, two of its six districts are overgrazed. There is only limited enforcement of the permit system.

Papago Reservation

The Papago reservation, with 2.8 million acres of rangeland, is currently grazed at more than double its capacity. A grazing permit system has never been adopted. As a result, individual cattle owners are not bound by permits or any other form of tribal or Bureau control.

The grazing capacity is expressed in terms of Animal-unit-months (AUMs); that is, the amount of forage required to feed a 1,000-pound cow for 1 month. In 1973 the cattle owners on the reservation used about 271,000 AUMs, while the authorized level was about 128,000.

The reservation is located in a region which endures frequent droughts. This climate, coupled with the severe overgrazing, has resulted in shortage of forage in recent years and has led to the starvation death of numerous cattle. To alleviate the problem, the Papagos have requested the Bureau to provide emergency feed supplies. In 1974 the Bureau provided \$67,000 for hay and arranged for emergency water supplies.

During each drought, the Bureau advises livestock owners to sell excess cattle and reduce herds to the range's carrying capacity. However, the Indians view their cattle as valued possessions and refuse to sell. The Indians also believe additional cattle are necessary to replace those that die during a drought.

For over 40 years, the Bureau has been telling the tribe that its rangeland is severely overgrazed and strong management and control are needed to correct the problem. The Bureau's 1974 Range and Livestock Report again recommended that the Papago Council seriously consider establishing livestock control and range management programs to protect the range resources and insure a reasonable measure of stability to the livestock industry. The Bureau believed the Council had two alternatives: (1) reduce and control livestock--the best way to stabilize the livestock industry--or (2) continue

the present system--with heavy losses in range resources and cattle, necessitating the purchase of expensive hay and supplemental feed every year. The Papagos have taken no actions to institute a livestock control program.

The foremost cause of overgrazing is a conflict between good range management practices and Indian culture and traditions. For many years the Indians grazed cattle and horses without being restricted by carrying capacities established to preserve the resource. They believe the Bureau should not impair their livelihood by imposing such grazing limits.

According to Bureau officials, the Papagos have traditionally placed a great value on owning horses. The reservation has approximately 3,440 horses which consume 1.5 times the forage that the same number of cows consume, and they have a very limited economic value. Some horses are needed to work the cattle during roundups, but beyond that they are economically useless. The officials added that 1 horse is needed for each 10 cows on the reservation. To effectively operate under the current range carrying capacity, the Indians would need about 920 horses to control the cattle. As the number of horses increases, the number of cattle must be decreased to remain within the grazing capacity.

The tribe strongly resists efforts to reduce the overgrazing. According to Bureau estimates, less than 3 percent of the cattle owners have large operations--more than 150 head of cattle. Bureau personnel said these cattle owners were very independent and resented interference or assistance from others. Although all land is tribally owned, these cattlemen have traditionally controlled certain areas and do not want restrictions or controls placed on their use.

According to Bureau and tribal officials, this independence has led to conflict within the tribe. They said that the tribal council usually represents the large cattle owners and is not willing to restrict the grazing. The council opposes the tribal chairman when he attempts to control grazing and reduce the number of livestock.

Because of this conflict, the tribe has been unable to implement a permit system. Such a system would limit grazing to the land's carrying capacity by imposing penalties for overgrazing or misuse of the land. Without a permit system there is no incentive for the cattle owners to reduce the overgrazing.

Hualapai Reservation

The Hualapai reservation, with 805,000 acres of rangeland, is grazed at about 83 percent of its overall capacity. However, two of its six districts are overgrazed. The tribe has a permit system established to limit the number of cattle in each district. According to this permit system, cattle owners must keep their cattle within their assigned district and cannot use range in another district. The following table shows the grazing status of each district during calendar year 1973.

<u>District</u>	<u>Authorized AUMs</u>	<u>Actual AUMs</u>
1	9,144	11,730
2	10,620	13,722
3	8,880	8,082
4	10,680	7,374
5	11,520	5,382
6	9,720	3,714

Although districts 1 and 2 are overgrazed in violation of the permit system, only limited effort is made to enforce the permits. Tribal officials stated that they were reluctant to take action because many of the cattle owners are relatives or long-time friends.

The Hualapais also have a high regard for horses and have about 600 of them on the reservation. Although the horses contribute to the overgrazing, their removal would not eliminate the problem.

Other reservations

The following table shows the calendar year 1973 grazing status of the other reservations included in our review.

<u>Reservation</u>	<u>Acres of rangeland</u>	<u>Authorized AUMs</u>	<u>Actual AUMs</u>
Ute Mountain	568,087	19,243	41,952
Northern Cheyenne	324,944	124,490	142,490
Southern Ute	222,709	8,648	2,840
Jicarilla	608,708	99,531	56,986
Fort Belknap	549,834	101,575	101,575

The Ute Mountain reservation is grazed at about double its capacity and has been overgrazed every year since 1962.

The reservation has no permit system, and cattle owners can use its rangeland without restriction.

In 1968 the Bureau informed the Ute Mountain Tribal Council that it was exceeding the authorized stocking rate by more than 100 percent. They recommended corrective actions before the cattle owners were confronted with forced livestock sales at reduced prices or emergency purchase of feed. The tribe has chosen to not implement these recommendations, and overstocking has continued. In addition, emergency feed grains were requested or used for each of the last 4 years.

In October 1974 the Albuquerque area director stated that the emergency conditions on the Ute Mountain reservation were chronic and recommended that stocking adjustments be made. According to a Bureau range conservationist, the tribe was not interested in following good range management practices or listening to the Bureau's advice.

The Northern Cheyenne reservation has a grazing permit system. It has effectively controlled grazing of permitted cattle and horses; however, the reservation has about 1,000 unpermitted horses. A Bureau official believes they will not cause any serious deterioration of the rangeland.

The Southern Ute, Jicarilla, and Fort Belknap reservations are not overgrazed. Each reservation has a grazing permit system that seems to be effective in (1) limiting the livestock to the range capacity and (2) keeping the rangeland in good condition.

Range improvements not properly used or maintained

Range improvements improperly used or maintained can cause deteriorated rangeland and reduced production quality, as on the Papago reservation. It can also result in underuse of the rangeland and reduced production quantity, as on parts of the Hualapai reservation. In addition, the absence of a permit system with grazing fees can remove a source of funds normally used for the maintenance and repair of range improvements.

In its natural state, semiarid rangeland in the southwest is usually lacking characteristics necessary for effective use. Due to the absence of readily available water, such improvements as wells, pipelines, charcos, and catchments are necessary. (A charco is a deep, steep-sided dirt

tank that functions as a trough; a catchment is an artificial watershed allowing rain that falls on an apron to run off and be collected in a reservoir.) In addition, such factors as unpalatable vegetation, overuse, and the large expanses of semiarid rangeland make such improvements as reseeded ranges and fences necessary. Normally, the individual operators maintain these improvements.

Papago Reservation

Between fiscal years 1959 and 1974, about \$6 million of Federal and tribal funds were spent for range and water improvements on the reservation. These improvements included such things as water supply systems (wells and charcos), reseeded, fencing, and repairs to existing improvements. A February 4, 1974, letter from the area office range conservationist to the area director stated:

"One wonders how much longer Congress will continue to assist the Papago people in their plight of range and water improvement if the millions of dollars already expended have not and are not being protected or used properly.

"It is suggested that closer surveillance be practiced over the proper use and maintenance on these expensive range improvements * * *."

* * * * *

"These expenditures have not significantly improved the situation on the Papago Reservation due to a lack of livestock management. It doesn't help the livestock operator or the range resources to drill additional water wells when there is not adequate forage to maintain the livestock * * *."

* * * * *

"Agency personnel are diligently working and planning immediate and future improvement projects with the people, but for lack of time, they are inadvertently passing over the responsibility of stressing proper use on completed projects."

During fiscal years 1975 and 1976, the Bureau plans to spend \$1.1 million as part of a \$3.6 million, 5-year comprehensive range and water development program specifically authorized for the Papago reservation. The Superintendent

stated that it is extremely difficult to justify a range rehabilitation program of this magnitude unless the tribe and the livestock owners are willing to reduce the livestock to the range-carrying capacity. If this is not done, the \$3.6 million program will not result in the intended long-term improvement of the Papago range.

In addition, the Papago cattle owners have not always maintained existing improvements. For example, in 1961 a 1,200-acre pasture was cleared of mesquite growth and re-seeded to produce a good grazing area. This demonstration pasture was properly fenced and well maintained for 3 years, after which it was grazed according to a schedule which allowed for optimum yield. Bureau officials stated that the fences fell into disrepair and the grazing schedule was not followed after the local village leader died. In November 1974 the fences still needed repair and the range appeared to be in very poor condition.

The reservation has only a limited amount of fencing, and much of it is not maintained. The 10 grazing-district boundaries are fenced, but there is little fencing within each district to help control and rotate cattle grazing. A Bureau official indicated that each person (or district) believes the party on the other side of the fence is responsible for repairs. A primary reason for the disrepair is a lack of maintenance funds.

Normally, the grazing fees received from a permit system can be used to maintain range improvements. Bureau efforts to institute a permit system on the reservation have been unsuccessful because of the cattle owners' desire to graze as many cattle as they want without interference or control. If a grazing permit system is established, grazing fees would amount to about \$253,000 a year, based on the Bureau-recommended rate of \$2 per AUM. These fees would help finance the development and maintenance of range improvements. A Bureau official estimated actual expenses for operation and maintenance of improvements in fiscal years 1973 and 1974 at about \$40,000 a year.

Also, Bureau officials stated that tribal officials do not always agree with them on the location of range improvements. For example, the Bureau recommended one location for a proposed charco, while livestock operators recommended another. The Bureau's location was based on soil composition and need; the operators' location was based only on need. In deference to the Bureau's emphasis on Indian "self-determination," the charco was constructed at the operators'

location, which had a sandy soil so the charco would not retain water. Bureau officials indicated it is now worthless.

Hualapai Reservation

Although about \$2.4 million of Federal and tribal funds were spent on range and water improvements between fiscal years 1959 and 1974, the reservation remains undergrazed by 17 percent. There are no long-range plans to effectively use the existing improvements or increase the livestock to the land's carrying capacity.

For example, about 16,000 acres of the district 6 common-use rangeland that was cleared of pinon-juniper growth and reseeded from 1953 to 1967 is not being fully used. Such growth is removed to reduce or eliminate the ground canopy where very little productive forage will grow. These efforts greatly increase forage production potential. Despite the excellent condition of this reseeded area, most cattle owners do not use it because they do not like to mix their cattle with cattle from the other districts.

Although improvements are not fully used and overall the range is undergrazed, the Bureau has proposed building a water development project on the western portion of the reservation. This development would cost over \$2.1 million and would increase range capacity by about 1,300 head. A study by the Bureau of Reclamation indicates a lack of feasible, less expensive alternatives to this development.

Considering the lack of full use of existing improvements, the overall undergrazing of the rangeland, and reluctance of the Hualapai cattle owners to mix their cattle with cattle from other districts, it appears that the need for this planned development is questionable at this time.

In addition to the failure to fully use existing range improvements, the tribe and the Bureau do not always agree that certain improvements are beneficial and should be maintained. The Hualapais maintain improvements which they believe are beneficial but ignore others they believe are useless.

Among the maintained improvements are wells, storage tanks, and pipelines. Catchment basins have not been maintained. According to the range conservationist, 13 of these basins, funded primarily by the Bureau and costing over \$100,000, are now only 20 to 25 percent effective.

Although the Bureau believes these basins are useful for catching and holding rain water, the Indians believe they are almost worthless. Weeds and other plants are allowed to grow through the tarred surface and defeat the purpose of the catchments. Without maintenance, the water nourishes the weeds and plants rather than draining into the holding tank. Discussions with Hualapai district leaders indicated these catchments were a waste of money because it never rained enough to make them effective.

The Bureau is currently maintaining one catchment to demonstrate its effectiveness in collecting water. Although the water we observed in the catchment's holding tank was discolored, the range conservationist said that it was fit for cattle consumption but that the Indians were reluctant to use it for their cattle because of this discoloration. At the time of our review, it was too early to determine if the Bureau's demonstration project would be successful and eventually acceptable to the Indians.

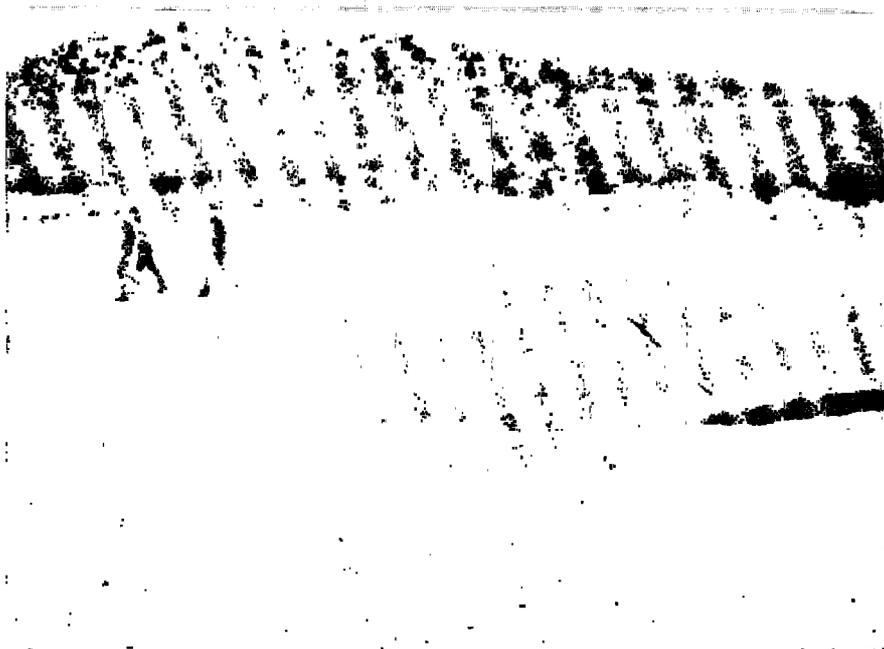
During fiscal year 1973, the tribe's general fund contributed about \$6,000 of the \$18,000 needed for the operation and maintenance of range improvements. According to tribal resolutions, grazing fees collected through the permit system are to be divided equally between (1) operation and maintenance of water developments, with any excess of this half going for range improvements, and (2) contribution to the tribe's general fund.

Although the Bureau has recommended a grazing fee of \$2 per AUM, the tribe has set the rate at \$0.29 per AUM. This was done in accordance with the Code of Federal Regulations which allows tribal governing bodies to establish their own rate for tribally owned land and in deference to cattle owners who complain about the high cost of grazing.

At December 31, 1973, cumulative delinquent grazing fees for the last 5 years totaled about \$3,380. Annual grazing fees are payable in advance; however, tribal officials indicate their reluctance to take action against those whose payments are delinquent because many of them are relatives or long-time friends. Because of the low grazing fee compared with the recommended rate and because of a lack of collection and enforcement, adequate funds for maintaining improvements were not being provided by cattle owners.



9. Water catchment basin not maintained on the Hualapai reservation.



10. Water catchment basin maintained on the Hualapai reservation.

(GAO Photographs)

Limited use of Bureau training
and education programs

Bureau training and education programs have received only limited use to further develop the Indians' range management capabilities. As of December 1974, no Indians on either the Papago or Hualapai reservations were enrolled in range training or education programs.

Bureau officials stated that most public schools are not resource-oriented, which tends to reduce the number of students entering the resources field. Until recently, the Bureau emphasized study in such fields as teaching and law. It stated that more emphasis is now being given to the study of natural resources.

The Bureau encourages all qualified Indians to seek higher education. Bureau funds are available for this purpose, and the individual is permitted to choose his own course of study at a college or university.

For fiscal year 1974, the Phoenix area office was allocated \$1.2 million for higher education grants. During that year, five Indians received education grants from the area office to study agriculture and land management. In the previous year, there were seven such grantees, and in 1972 there were three. Most of these students were in their first or second year of study, and only one received a grant for more than 1 of the 3 years.

In 1971 two Papago Indians completed a specially designed range management course in Colorado. One is currently employed as the tribal herd manager, but the other no longer works in range activities. Since that time, no Papagos have attended formal range management courses. Bureau officials said the Papagos were aware of the formal training programs but had not shown interest in them.

The agency superintendent on the Hualapai reservation said that, during the past 10 years, no Indians have taken advantage of these range Management training programs because of (1) the Indians' reluctance to leave the reservation and (2) the limited effort of Bureau and tribal officials to motivate Hualapai youth to take courses in resources management.

Bureau officials added that range educational programs should be established at the local levels with no need to travel from the reservation. These local programs could

include demonstration projects designed especially for the local conditions.

Lack of range management plans

Range management plans generally have not been developed. Local Bureau officials indicated a number of reasons for the lack of current plans, including (1) higher priority work, (2) lack of funds and manpower, and (3) attitudes of Indians.

The Bureau's Range Management Handbook states that, "to carry out Bureau objectives for development and management of the Indian range resource, planning is essential." According to this handbook, the Bureau and the tribe will jointly prepare and approve range management plans. The plans are to be concerned with the effective development and use of the complete range resource through range and water improvements, good conservation practices, Indian participation and education, market demand determinations, effective sales techniques, and a realistic enforcement program. In addition, the plans should be prepared to assist the range user in reaching a better understanding of the needs of his range and to provide for a management goal. The handbook also indicates that plans should be updated periodically or as conditions change.

Papago Reservation

The reservation has no comprehensive range management plan. In 1972 the tribe requested the Congress to fund range improvements. This request concerned a comprehensive water, forage, and conservation program at a total cost of \$3.6 million over a 5-year period. The benefits to be derived from this program include (1) a more secure livestock economy, (2) increased income to the Papago people, (3) a more sophisticated and proven approach to range management and range ecology, and (4) practical elimination of periodic drought crises. While this request contained descriptions of the range improvements and water developments the tribe wished to make, it covered little else required in a range management plan, such as proper stocking rates and a realistic enforcement program.

The land operations officer said the necessary data was available and a plan could be completed within a week; however, he believed this would be a wasted effort without strong enforcement on the reservation.

Hualapai Reservation

The latest range management plan, completed in 1937, was a very detailed document that included a description of the range, the economics of the livestock industry, present methods of handling livestock, and the present and proposed plan of management.

Local Bureau officials stated they have neither the funding nor the manpower to update the plan. In addition, they believe soil and range condition surveys are necessary to properly complete a new range management plan.

The Bureau range management official at the reservation also serves as the land operations officer, the forestry officer, and the soil conservationist. Because of his multiple duties, he is unable to direct much of his attention to range management planning. Most of his time spent on range management is devoted to day-to-day maintenance, completion of range and water improvements, and emergency situations.

Other reservations

Current range management plans have not been developed for the Northern Cheyenne, Fort Belknap, Jicarilla, Ute Mountain, and Southern Ute reservations.

The Northern Cheyenne reservation is one of the few reservations without a current range and soil inventory. This inventory is a basic document which must be completed before a range management plan can be prepared. A Bureau official indicated this will be one of the first tasks of a range and soil conservationist which the Bureau is attempting to hire.

The Fort Belknap reservation has no range management plans for two reasons: (1) a lack of manpower and funds and (2) the Indian landowner's ability to remove his land from a range unit. The reservation is divided into range units which are composed of tribal, State, and individual Indian lands. An Indian can remove his land from these units after 6 months' notice. Bureau officials stated that long-range planning becomes quite difficult because of this changeable status of range units.

The Albuquerque area office range conservationist stated that current range management plans have not been developed on the Jicarilla, Ute Mountain, and Southern Ute reservations because of a lack of funds and manpower.

CONCLUSIONS

Indians have significant rangeland resources which, if properly managed, could provide additional employment, income, and economic development for the Indian people and provide additional food to help meet the Nation's needs. However, good range management is not being practiced on some reservations because of (1) overgrazing of rangeland, (2) improvements not properly used or maintained, and (3) limited use of Bureau training and education programs.

As a result of these problems, the quality of Indian rangeland has deteriorated. This is particularly true on those reservations where serious overgrazing exists. In addition, the quality and quantity of cattle that a range can produce have been directly affected by the condition and effective use of the land and its improvements.

Indian cultures and traditions contribute to the range management problems. These philosophies sometimes run counter to prudent range management practices. In addition, tribal conflicts and lack of agreement between the Bureau and the tribes add to the situation. These factors have adversely affected the capability of Indian rangeland resources to satisfy both Indian and national needs.

RECOMMENDATIONS TO THE SECRETARY OF THE INTERIOR

To resolve these problems, we believe Bureau and tribal officials' development and implementation of range management plans is essential. Accordingly, we recommend that the Secretary of the Interior direct the Bureau to work with the tribes to develop long-term range management plans. These plans should provide for agreement between the Bureau and the tribes on:

- Range and soil inventories to determine current range capacity.
- Timetables for adjusting herd size to capacity.
- Grazing permit systems.
- Development and prudent use of improvements to increase range capacity.
- The amount of Federal and tribal funding needed to develop the improvements.

--Education programs to promote good range management practices.

To encourage the appropriate implementation of these plans, we also recommend that the Secretary of the Interior request funding for only those range improvements that are in agreement with the long-term range management plans and that he submit the plans to the Congress when requesting funds for range improvements.

AGENCY COMMENTS AND OUR EVALUATION

In commenting on our findings and recommendations, the Department stated that our description of Indian rangeland problems is accurate but that the outlook for improvement is not optimistic for those reservations which will not implement and enforce a grazing permit system based on proper stocking levels.

In response to our recommendations, the Bureau's current plans include:

- Appraising ongoing soil and range inventory effort to program its completion, on a priority basis, at the earliest possible date.
- Freeing range conservationists from the ministerial duties (many of which are clerical in nature) of range permits so they can work full time on making inventories and in management planning.
- Continuing and improving the grazing permit systems that are in operation.
- Requiring comprehensive management plans as justification of budget requests for improvement funds, and requiring that such improvements be based on need and be compatible with physical location.
- Carefully evaluating requests for donated feed grain when received and forwarding for approval only those reservations that have adopted and comply with a comprehensive management plan, which includes an enforceable range permit system.

Proper implementation of these plans should enable the Bureau to improve its management of Indian rangeland.

CHAPTER 5

MANAGEMENT OF INDIAN CROPLANDS

Indian croplands produced about \$259 million of agricultural products in 1973. About 10,500 Indian families obtained all or part of their livelihood from farming their land. Even though the Bureau's programs have provided needed assistance to Indians in managing their cropland, some opportunities exist to improve these efforts. The Bureau needs to provide irrigation management services to encourage efficient use of irrigation waters, and agricultural leasing procedures need strengthening to insure Indian landowners do not forego rental income for land improvements made by the renter but financed with Federal grants.

INDIAN CROPLANDS IN PERSPECTIVE

The Indians have about 2.8 million acres of cropland, which comprises about 0.6 percent of the Nation's total and provided about 0.3 percent of the value of crops grown in 1969. ^{1/} The Gila River and Yakima reservation, where we made our review, have 8 percent of the total Indian cropland and 23 percent of the total irrigated cropland. Crops grown on these two reservations amounted to 15.7 percent of the total crop value on all Indian reservations. A comparison of the Nation's and the Indians' croplands and crop values follows.

<u>Type of farming</u>	<u>Nationally</u>	<u>Within all Indian reservations</u>	
	(million acres)	(million acres)	(percent of Nation)
Nonirrigated	420	1.83	0.44
Irrigated	<u>39</u>	<u>.97</u>	<u>2.48</u>
Total	<u>459</u>	<u>2.80</u>	<u>.61</u>
Total value of crops grown	\$45.6 billion	\$136.3 million	.03

During 1973 Indians farmed 638,000 acres of reservation land--up from 535,000 acres in 1964. Their remaining croplands, about 1.9 million acres, were leased to non-Indian farmers. An additional 168,000 acres were idle. The

^{1/}Latest year for which national statistics were available.

Indian landowners received \$20.2 million from leasing their crop and pasture lands in 1973.

An estimated 1,902 Gila River and 395 Yakima Indians were employed in agricultural and related activities on their reservations. These Indians earned an estimated \$3.5 and \$1.4 million, respectively, in 1974.

<u>Employed by</u>	<u>Indians employed</u>			
	<u>Gila River Reservation</u>		<u>Yakima Reservation</u>	
	<u>Number</u>	<u>Income</u>	<u>Number</u>	<u>Income</u>
Bureau	43	\$ 349,391	62	\$ 747,408
Tribe	114	579,120	-	-
Private Industry				
(note a)	35	100,032	46	52,368
Self-employed				
(note a)	415	1,112,400	37	322,500
Farm laborer				
(note a)	<u>1,295</u>	<u>1,374,635</u>	<u>250</u>	<u>270,000</u>
Total	<u>1,902</u>	<u>\$3,515,578</u>	<u>395</u>	<u>\$1,392,276</u>

a/Includes part-time employees.

In addition to the income from employment, the Indian landowners on the Gila River and Yakima reservations received \$2.4 million of cropland rental income.

CROPLAND MANAGEMENT OBJECTIVES

Various Bureau programs help the Indian people farm and lease their lands. The Bureau's policy is to construct and manage irrigation facilities for the just and equitable distribution of water to Indian lands. Nineteen reservations have major Bureau-financed irrigation projects. During fiscal year 1973, the Bureau budgeted \$18 million for constructing irrigation projects and \$1.6 million for project operations and maintenance.

Technical assistance for managing and leasing croplands is provided by the Bureau's soil and water conservation, agricultural extension, and real property management and appraisal programs. The cost for this agricultural technical assistance is not readily determinable because these programs also provide technical assistance for the management of non-agricultural land and other Indian resources. Total cost for these programs, which are intended to help the Indians conserve, restore, and improve the land and receive fair returns from their use or lease, was \$20.5 million during fiscal year 1973.

NEED TO DEVELOP AN IRRIGATION
MANAGEMENT SERVICES PROGRAM

The Bureau needs to identify reservation lands served by Bureau irrigation projects which could benefit from irrigation management services (IMS) and plan and provide guidance for implementing IMS programs. The Bureau of Reclamation (BR) defines IMS as a series of practices which would improve irrigation efficiency, such as irrigation scheduling, water runoff recovery, and farm facility improvements. IMS would not only distribute limited supplies of water to more agricultural lands but would minimize the deterioration of productive agricultural lands by a rising water table. 1/

Since 1969 BR has begun IMS in 17 irrigation districts. The Office of Management and Budget provided additional momentum in 1973, when it directed BR to place greater emphasis on improved water management and irrigation efficiency in its planning and operations. The National Water Commission, in its report to the President and to the Congress in June 1973, also voiced a need for this type of program. Various BR and other studies concluded IMS would allow farmers to reduce water use and the acreage affected by a rising water table. IMS is expected to increase irrigation efficiency about 20 percent annually at a cost of \$8 an acre.

Despite the apparent benefits IMS offers, the Bureau has not started such a program. Bureau headquarters officials said the Bureau has not provided any guidance or direction to promote or plan for IMS, because IMS probably was not needed on its irrigation projects. They stated that they had not fully explored BR's efforts to develop IMS and expressed doubts whether farmers would cooperate in implementing an IMS program.

On the Yakima reservation, IMS could increase the amount of land used for farming. A Bureau official stated that the irrigation project does not have IMS because the project's responsibility is limited to water delivery and does not include water use management.

Productivity on 10,500 acres out of 154,800 acres of Yakima cropland has already been adversely affected by a rising water table, and about 300 additional acres are

1/A rising water table may increase soil salinity and harm crop root structures.

being affected each year. Bureau and Soil Conservation Service (SCS) 1/ personnel attributed this, partially, to overapplication of irrigation water.

A 1969 Bureau study estimated that annual rent for 2,282 acres of affected Yakima croplands could increase by \$66,520, if the land were reclaimed. Furthermore, rental income could be expected to decrease if the present rate of land deterioration were allowed to continue. According to an agency official, some of this land was formerly used to grow hops and annually rented for over \$50 an acre. Now these same lands are suitable only as pasture and rent for about \$2 an acre.

The study also stated that water management by the farmers was needed to help alleviate the problem and that the irrigation project, Bureau, SCS, and the State extension service should develop a management plan. The State extension service started a plan but never completed or implemented it because, according to a Bureau official, the farmers did not believe they were over irrigating and did not want to incur the additional labor and recordkeeping costs associated with such a plan.

An alternative to IMS on the Yakima reservation would be a drainage project to lower the area's water table. It would cost substantially more than IMS, however. During 1970 and 1971, 934 acres were drained at about \$125 per acre. A Bureau official estimated current drainage cost to be nearly \$200 per acre.

On the Gila River reservation during 1973, only 13,083 acres of the 50,500-acre Indian portion of the San Carlos Irrigation Project received water. These lands produced about \$4.4 million of agricultural products. Bureau officials advised that the Bureau was not planning or developing a reservation IMS program because it and the tribe have been concentrating their efforts on obtaining additional irrigation waters. They believed, however, that IMS could stretch existing water supplies to irrigate substantially more acres of Indian croplands.

Despite certain tribes' beliefs and the Bureau's inaction, the Colorado River Tribal Council recognized the benefits of IMS as a means of improving their agricultural economy. In 1973, the tribe, Bureau, and BR entered into an agreement to implement IMS on the Colorado River Irrigation Project.

1/Department of Agriculture.

Bureau officials stated that the tribe encouraged IMS because almost all of its available water was being used on 62,000 acres out of 103,000 acres of irrigable lands. IMS has the potential to stretch existing water supplies to an additional 28,000 acres of reservation land by 1978.

Conclusion

We believe that an IMS program would improve the efficiency of Indian irrigation projects. In addition to distributing limited supplies of water to more land, an IMS program could minimize the deterioration of productive agricultural land by a rising water table.

Recommendations to the Secretary of the Interior

We recommend that the Secretary of the Interior direct the Bureau to work with Indian tribes and the Bureau of Reclamation to (1) identify reservation lands served by Bureau irrigation projects which would most benefit from IMS and (2) plan and provide guidance to implement IMS on those reservations.

Agency comments

The Bureau agreed in principal with our recommendation to identify reservations which can benefit from an irrigation management system. It pointed out, however, that many Indian irrigation projects provide only marginal benefits to Indians because the land is used predominantly by non-Indians. The Bureau believes that this factor must also be considered in formulating recommendations for irrigation management systems.

NEED TO STRENGTHEN AGRICULTURAL LEASE PROCEDURES

The Bureau needs to develop lease procedures and terms which insure that Indian landowners do not forego rental income for land improvements made by the renter but financed with Federal grants. These improvements have included such things as land leveling, ground water drainage, and improving water distribution systems. In some instances Indians accepted less than fair rental value for their agricultural lands to help finance land improvements made by the renter. Later, some of the renters received grants from the Agricultural Stabilization and Conservation Service (ASCS), Department of Agriculture, for making these land improvements.

On the Yakima reservation, 22 agricultural leases were made in which the renter received ASCS land conservation

improvement grants in 1973 and 1974. We identified five leases under which the Indian landowners will forego up to \$24,800 in rent to help finance land improvements. After entering into the leases, the renters received nearly \$6,900 from ASCS for these same improvements. For example:

--In 1974, the Bureau determined that 79.5 acres should rent for \$3,650 a year. The approved 10-year lease provided for an annual rent of \$3,350 and included water distribution system improvements to be made by the renter for an estimated cost of \$4,000. The Indian landowners would forego \$300 of rental income annually for a total of \$3,000 during the 10-year lease. After the water distribution system improvements were made, the renter received a grant payment of \$2,416 from ASCS to help finance the improvements. The lease file contained no evidence that the Indians knew the renter intended to apply or had applied and received ASCS financial assistance.

However, in one lease on the Yakima reservation, entered into in 1972, the ASCS grant was considered in determining annual rent. The lease provided that, if an ASCS grant was not available to finance the improvements, 32 percent of the estimated improvement cost would be amortized and deducted from the rent. The renter received the ASCS grant in 1974, and the Indian landowners did not have to reduce the rental rate. We were told that this provision occurred as a result of lease negotiations.

Conclusion

We believe the Bureau needs to insure that Indian landowners are not unnecessarily foregoing rental income to finance land improvements made by the renter and financed by Federal grants.

Recommendations to the Secretary of the Interior

We recommend that the Secretary of the Interior direct the Bureau to develop lease procedures and terms to insure that Indians (1) have full and complete knowledge of Federal grants involving their leased land and (2) do not unknowingly forego rental income for improvements made by renters and financed by Federal grants. In this regard, it would seem desirable for the Bureau to seek the assistance or advice of ASCS on the development of such lease procedures.

Agency comments

The Bureau agreed with our recommendation and stated that to insure that the Indian landowners have full knowledge of their land, their options, the Federal cost share programs, etc., each leasing office should have--either as an integral part of the leasing staff or available on an on-call basis--an agricultural specialist who is fully informed about the land and available programs. The Bureau also stated that these specialists should personally (if physically possible) tell the owner(s) about their land and the options available to them so they will be equipped to make intelligent decisions regarding lease proposals.

CHAPTER 6

SCOPE OF REVIEW

We reviewed the forest management activities at the Colville and Yakima reservations in Washington State and the Arizona Fort Apache reservation. We reviewed the rangeland management activities primarily at the Hualapai and Papago reservations in Arizona and did a limited review of the Ute Mountain reservation in Colorado and New Mexico, the Southern Ute reservation in Colorado, the Jicarilla reservation in New Mexico, and the Fort Belknap and Northern Cheyenne reservations in Montana. Cropland management was reviewed at the Gila River reservation in Arizona and the Yakima reservation in Washington. We also made our review at, in addition to the applicable agency offices, the Bureau headquarters office in Washington, D.C., and area offices in Portland, Phoenix, and Albuquerque.

We reviewed applicable laws and regulations and the Bureau's policies, procedures, and practices relating to the forest, range, and cropland management activities. We also discussed the management of these resources with tribal officials and with Bureau officials at the headquarters, area, and agency offices.

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JERRY T. VERKLER, STAFF DIRECTOR

United States Senate

COMMITTEE ON
INTERIOR AND INSULAR AFFAIRS
WASHINGTON, D.C. 20510

June 11, 1974

The Honorable Elmer B. Staats
Comptroller General of the United States
General Accounting Office
Washington, D. C. 20548

Dear Mr. Comptroller General:

As you know, due to the ever increasing demand for energy fuels, the United States is currently experiencing a fuel shortage. Also, to varying degrees, the Nation is experiencing shortages of certain agricultural and meat products, timber for home construction and other commercial purposes, and other mineral resources.

The American Indians, who have long been considered to be among the most disadvantaged Americans, have significant land and natural resources which, if properly developed, could play a significant role in contributing toward a reduction in these shortages and at the same time provide much needed employment, income, and economic development for the Indian people. For example, Indian lands contain nearly 44 million acres of range land, 13 million acres of forests, and 1.2 million acres of cropland. Also, a recent newspaper article stated that over two dozen Indian reservations contain significant reserves of oil, gas, coal, uranium, oil shale, tar sands, and geothermal resource potential. The article further noted that other reservations contain deposits of copper, tungsten, iron, gold, silver, phosphate, asbestos, and limestone.

The Committee is concerned about the energy, mineral, food, and timber shortages facing the Nation and the need to develop our domestic resources. Therefore, I



would appreciate it if you would undertake a review of the efforts of the Bureau of Indian Affairs to encourage the development of the natural resources on Indian reservations and, which at the same time, could provide the Indian people with much needed employment, income and economic development.

You may disclose that your review is being made at the request of the Committee and you may obtain agency comments on your report.

The Committee and its staff stand ready to assist you in your efforts.

Sincerely yours,



Henry M. Jackson
Chairman

HMJ/figh



United States Department of the Interior

OFFICE OF THE SECRETARY
WASHINGTON, D.C. 20240

JUL 15 1975

Mr. Henry Eschwege
Director, Resources and
Economic Development Division
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Eschwege:

This responds to your April 25, 1975, request for comments on the GAO draft, "Indian Natural Resources--Opportunities for Improved Management and Increased Productivity." Your report makes many valid points. BIA's editorial suggestions were furnished previously.

Comments on the GAO recommendations follow:

Management of Indian Forest Land. BIA and the Department agree with your point that the level of effort needed to meet the objectives of sustained yield and to achieve an allowable cut should be determined. A study is now underway on an agency-by-agency basis to do just that, and the Congress will be notified of the results. However, there is no commitment at this time to seek additional Federal appropriations for such purposes. In some situations, the tribe may have the resources and may be the logical party to assume the financial burden, particularly where the potential additional revenue is substantially in excess of the added cost required.

With respect to the recommendations appearing on pages 37 and 38 of the draft report:

1. BIA agrees that the viability of forest management techniques should be assessed, that long-range plans for eliminating the backlog of needed forest management work should be developed, and that salvage plans for harvesting dead and dying timber are needed. These actions will be accomplished if adequate resources can be made available.

2. BIA believes that existing guidelines for use of the 10 percent funds are basically sound. The examples of questionable use of such funds were caused by inadequate administration and application of guidelines. Area and agency offices will be directed to adhere to the guidelines in the future.



Save Energy and You Serve America!

3. As previously mentioned, a study is now in process to determine additional staffing needs. The appropriate congressional committees will be informed. But as stated before, there is no commitment to seek additional Federal appropriations.

4. BIA concurs in periodically evaluating the effectiveness of its efforts in increasing timber production and will report the results in its budget justifications.

Management of Indian Rangeland. Your description of Indian rangeland problems is accurate. The outlook for improvement, however, is not optimistic for those reservations which will not implement and enforce a grazing permit system based on proper stocking levels. As your report observes, BIA has been trying for years to persuade certain tribes to use sound grazing practices, but without success. Apparently, tribal culture and tradition are more important than conservation of the land and improved economic return. Viewing the situation objectively, there is no reason to expect a reversal of past practices. Fortunately, most tribes are using a sound grazing permit system.

BIA endorses the GAO recommendations appearing on page 63. Current plans include:

1. An appraisal of ongoing soil and range inventory effort will be made in order to program completion, on a priority basis, at the earliest possible date.
2. Every effort will be made to free range conservationists from the ministerial duties (many of which are clerical in nature) of range permits in order for them to spend full time on making inventories and in management planning.
3. Grazing permit systems that are in operation will be continued, as will efforts to improve those systems.
4. Comprehensive management plans will be required as justification of budget requests for improvement funds. Improvements must be based on need and must be compatible with physical location.
5. Requests for donated feed grain will be carefully evaluated when received. They will be forwarded for approval only for those reservations that have adopted and are in compliance with a comprehensive management plan. The management plan must include an enforceable range permit system.

Management of Indian Croplands. BIA agrees in principal with your recommendation on page 69 to identify reservations which can benefit from an irrigation management system. But for the same reasons discussed under

Management of Indian Forest Land, there can be no commitment to seek Federal appropriations for such purposes. Many Indian irrigation projects provide only marginal benefits to Indians because the land is used predominantly by non-Indians. This factor must also be considered in formulating recommendations.

BIA also agrees with your recommendation on page 71. In order to insure that the Indian landowners have full knowledge of their land, their options, Federal cost share programs, etc., each leasing office should have, either as an integral part of the leasing staff or available on an on-call basis, an agricultural specialist who is fully informed regarding the land and available programs. That specialist should personally (if physically possible) inform the owner(s) about their land and the options available to them in order to equip them to make intelligent decisions regarding lease proposals.

We appreciate the opportunity to comment on your draft report.

Sincerely,



Director of Audit and Investigation

GAO note: Page number references in this appendix (37, 38, 63, 69, and 71) are pages 27, 28, 46, 52, and 53 in this report.